



Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

SECTOR 5 — CHART INFORMATION

SECTOR 5

BALI, LOMBOK, SUMBAWA, AND ADJACENT STRAITS

Plan.—This sector describes the islands of Bali, Lombok, and Sumbawa with the straits adjoining them, and the off-lying islands to the N. The arrangement is N through Selat Bali, then E covering the three islands, related straits, and off-lying islands to the N.

General Remarks

5.1 Selat Bali (8°15'S., 114°26'E.), separating the E side of Jawa from Bali, is deep and is used mainly by coastal and inter-island vessels. **Banyuwangi** (Banjuwangi) (8°13'S., 114°23'E.), an important shipping place, is situated on the W side of the strait, S of the narrows. During the Southeast Monsoon, the weather is hazy and the high mountains of Jawa and Bali can rarely be seen.

Bali, the start of Nusa Tenggara, previously known as The Lesser Sunda Islands, is mountainous through the main ridge running from W to E in apparent continuation of the volcanic ridge through Jawa. Most of the spurs of the ridge approach the N and NE coasts very closely and only occasionally does a narrow stretch of lowland remain. Southward of the ridge, the land is low or slightly hilly with the exception of the Bukit Badung peninsula and the hills around **Labuhan Amuk** (Labuan Amuk) (8°31'S., 115°32'E.).

The coasts of Bali generally rise steeply from the sea, with great depths close to, so that there is anchorage inshore only. Because the coast is entirely open, the only safe anchorage is off the E coast in the Northwest Monsoon and off the W coast in the Southeast Monsoon.

Winds—Weather.—During the Southeast Monsoon, the wind is mostly from SSW to SE with a W current. From July to September, the wind can be very strong. In the Northwest Monsoon, a vessel may be set strongly E, both by wind and current.

Tides—Currents.—The character of the tidal current in Selat Bali is semidiurnal. The direction is affected by the monsoon, with the Southeast Monsoon causing a constant S current, and the Northwest Monsoon causing a constant N current. The resultant current, due to the combined working of the tides and the monsoons, is, as follows:

1. In the narrows of the N entrance, during the Southeast Monsoon, the current flows nearly in a constant S direction. It is strongest about 5 hours after the moon's upper and lower transit, with a maximum rate of 6 to 7 knots. From about 3 hours before until the moon's transit, a weaker current sets N with a maximum rate of 3.5 knots, although this may be replaced by an inconsistent current or even by a weak S current with a maximum rate of 2 knots.

2. In the narrows, during the Northwest Monsoon, the N current is the stronger and flows for about 8 hours from about 6 hours before to 2 hours after the moon's upper and lower transit. The maximum rate, from 6 to 7 knots, occurs about 3 hours before the moon's upper and lower transit. During other periods there is a S current.

3. In the narrows, during the transition months between the monsoons, the rate of either the N or S current does not exceed 5.5 knots. The N current runs from about 4 hours 30 minutes before to 2 hours 30 minutes after the moon's upper and lower transit, and the S current runs during the remainder of the period.

As a general rule, the strongest currents can be expected in the first week after full or new moon. During neap tides (first week after the quarters) the rate never exceeds 3 knots.

Near **Tanjung Sembulungan** (8°27'S., 114°23'E.), the tidal currents start about 2 to 2 hours 30 minutes earlier than in the narrows; near **Banyuwangi** (Banjuwangi) (8°13'S., 114°23'E.) from 1 to 1 hour 30 minutes earlier; and near **Pulau Tabuan** (8°03'S., 114°28'E.) from 1 to 2 hours later. In the wider part of the strait the tidal currents usually occur later than close to the coast.

The maximum rate of the current increases regularly as the narrows are approached. Under the N coast of Bali, E of **Tanjung Pasir** (8°06'S., 114°26'E.), the NW extremity of the island, where the N current is setting through the strait, there is usually an eddy or the current is inappreciable.

The N current decreases in strength to the S of the narrows and off Banyuwangi, the rate is about 0.5 of that off Tanjung Pasir. In the S part of the strait, during the Northwest Monsoon, the current sets strongly to the E, toward **Bukit Badung** (8°48'S., 115°10'E.), a peninsula forming the S extremity of Bali.

The currents near the shore are not as strong as those in the middle of the strait. They sometimes run in a contrary direction.

Gosong Ratu (8°35'S., 114°39'E.), near the middle of the S entrance of Selat Bali, has a least depth of 9.1m. This shoal bank is about 1 mile in diameter and is not marked by discoloration.

Bukit Badung (8°48'S., 115°10'E.), the peninsula forming the S extremity of Bali, bears some resemblance to that of **Semanjung Blambangan** (Blambangan Peninsula) (8°45'S., 114°25'E.), the SE extremity of Jawa, when seen from S. During the Southeast Monsoon, care must be taken not to mistake **Selat Badung** (8°40'S., 115°22'E.) for Semanjung Blambangan.

Selat Bali—West Side

5.2 Tanjung Bantenan (8°47'S., 114°32'E.) is the S projection of Blambangan Peninsula which is covered with a dense, monotonous forest. The S and E sides of the peninsula are fringed by a drying reef up to 1 mile offshore. The sea breaks heavily on this reef. The W side of the S part of Selat Bali, between **Tanjung Slokah** (8°43'S., 114°36'E.) and **Tanjung Sembulungan** (8°27'S., 114°23'E.), is formed by Blambangan Peninsula. The coast is steep-to, with considerable depths close offshore.

Tanjung (Kucur) Kutjur, a wooded point 34m high, lies 4 miles NNW of Tanjung Slokah, and then WNW for 6 miles to Tanjung Keben, another wooded point 56m high, the E entrance point to Teluk Banyubiru, the coast is high and wooded.

Anchorage may be taken in Teluk Banyubiru in a depth of 37m, 0.5 mile off the head of the bay. Between the W entrance point to Teluk Banyubiru and **Tanjung Sembulungan** (8°27'S., 114°23'E.), the coast is wooded. Tanjung Sembulungan is the N extremity of a high peninsula and forms the E side of Teluk Pangpang, which indents the coast. The E shore of the bay is fringed by a steep-to reef and fronted by a sandy beach. The head of the bay and the W shore are fronted by a partly drying mudflat which occupies the greater part of the bay.

Sheltered anchorage may be taken in Teluk Pangpang at all times. Depths decrease gradually from 18m in the fairway of the entrance, to 5.5m about 3 miles within. Between Teluk Pangpang and **Tanjung Pakem** (8°14'S., 114°23'E.), the coast is thickly wooded with a few openings for some scattered settlements.

Bromo Rock (8°16'S., 114°25'E.), with a least depth of 11m, and **Parkem Reef**, with a least depth of 4.6m lie; respectively, 2.25 and 1.25 miles SSE of Tanjung Pakem.

Parkem Reef is marked by a beacon on its E side. From Tanjung Pakem to the town of Banyuwangi, 1.75 miles NNW, the coast is similar to that S of the point.

5.3 Banyuwangi (8°13'S., 114°23'E.) ([World Port Index No. 51210](#)), a lighterage port of some importance, consists of an Outer Road, Inner Road, and an Inner Harbor. The latter consists of a shallow rectangular basin with sloping walls and lighter jetties. The basin is connected to the town by rail and road bridges.

Winds—Weather.—The climate is hot and sultry due to Banyuwangi enclosed by lofty mountains to the W. During the Southeast Monsoon the temperatures are lower and the nights are somewhat cooler.

Tides—Currents.—Semidiurnal tides predominate.

The direction of the tidal currents, near the Jawa coast, often changes considerably earlier than farther out. The tidal currents in the Inner Road often run more strongly and in a contrary direction to those in the Outer Road, and may attain a rate of 2.5 knots.

Depths of 18 to 20m are found in the Outer Road, and depths of between 7m and 13m are found in the Inner Road.

New Bank, with a least depth of 6.7m, and marked on its N side by a lighted buoy, lies 0.25 mile E of the port office.

Aspect.—Prominent objects in the approach to Banyuwangi are a radio mast showing an obstruction light 0.5 mile WSW, and a factory and chimney 0.75 mile N of the port office at Banyuwangi.

Pilotage.—Pilotage is compulsory for vessels over 150 grt. Pilots must be ordered by the agent 48 hours in advance.

Anchorage.—The Outer Road between Ommen Shoal and New Bank affords good anchorage for moderate-sized vessels, in depths of 18 to 20m, but the bottom is uneven.

Vessels making for the inner anchorage are advised to moor as there is limited space. During the Northwest Monsoon, there is seldom any sea and communications with the shore can always be maintained.

Directions.—Banyuwangi is difficult to identify in the afternoon, when the sun is behind it, but mountains on Bali, 6 miles E, provide a good mark. Vessels approaching the Outer Road from S should avoid Bromo Rock and Parkem Reef, and pass mid-channel between Ommen Shoal and DeGroots Rock. Vessels approaching from N should pass E of Ommen Shoal in depths of not less than 27.4m. Due to the narrowness of the inner anchorage, vessels entering or leaving this channel should take care to proceed against the current.

Caution.—Due to changing conditions, vessels not having the latest local knowledge are advised to seek the assistance of the harbormaster. DeGroots Rock, with a least depth of 3.6m, lies about 0.75 miles SE of the port office. Ommen Shoal, a small coral patch with a depth of 4.8m, lies about 0.8 mile ENE of DeGroots Rock.

5.4 Ketapang (8°09'S., 114°24'E.) lies 4 miles N of Banyuwangi, with a low coast between. An area in which anchoring is prohibited due to the presence of submarine cables is situated between Ketapang and the NW side of Bali.

Pelabuhan Meneng (8°07'S., 114°24'E.), located 5.5 miles N of Banyuwangi, is an open roadstead harbor 0.5 mile S of the wharf. A light is shown from the port.

The wharf is 200m long, with a depth of 12m alongside. Vessels up to 20,000 dwt, with a maximum length of 152m (80m for tankers) and a maximum draft of 8m, can be accommodated.

An L-shaped pier, situated close SE of the wharf, is 110m long with an alongside depth of 7.3m. A T-shaped oil pier, with an alongside depth of 12m, extends 200m E from the shore, about 0.2 mile S of the L-shaped pier.

Lights are shown at the port. Mooring operations are restricted to daylight hours only.

Pusri is a new port situated 0.5 mile S of Meneng is designed to facilitate the off-loading of domestic tankers and general cargo vessels. A berth, 150m long with depths of 10 to 12m alongside, is situated in the open roadstead; vessels up to 140m can berth there.

Depths—Limitations.—A bar with a depth of 7.3m has been reported to lie about 0.25 mile E of the wharf.

Pilotage.—Pilotage is compulsory for vessels over 80 grt and should be ordered at least 6 hours prior to arrival. Berthing and unberthing are carried out during daylight only. The local authorities may be contacted via "8 AD 22", on 8110 kHz or 5316 kHz. "Menong Radio" may also be contacted on VHF channels 12 and 16.

Anchorage.—Anchorage may be taken in Teluk Mana, located 1.5 miles N of Ketapang, in depths of 17 to 31m.

This anchorage is free of strong tidal currents, but eddies exist.

5.5 Tanjung Bansering (8°04'S., 114°26'E.) lies 5 miles N of Ketapang and is low and covered with coconut palms. Tanjung Bansering Lighthouses, in line bearing 005°, led through the narrows at the N end of Selat Bali. The rear light is a 20m high, white metal framework tower, situated 0.3 mile WNW of Tanjung Bansering. The front light is shown from a 13m high, white metal framework tower, lying 0.3 mile S of the rear light. Between Tanjung Bansering and **Tanjung Candiban** (Jandiban) (Tjandiban) (7°53'S., 114°28'E.), 10.5

miles N, the E coast of Jawa is fringed by reefs. The portion of the coast abreast **Pulau Tabuan** (8°03'S., 114°28'E.), 3 miles N of the narrows, is fronted by a broad costal reef. Several drying patches, covered with vegetation and resembling islands, are found on this reef. Many above and below-water detached reefs lie off this coast.

Krokodil (7°57'S., 114°27'E.) is located about 3.5 miles S of Tanjung Candiban. It is a steep-to rock marked by discoloration, with a depth of 3m. Between Tanjung Candiban and **Tanjung Sedano** (7°50'S., 114°28'E.), 4.5 miles N, the coast is fringed by a narrow coral reef with several openings.

Gunung Baluran (7°51'S., 114°22'E.), located near the NE extremity of Jawa, forms a mountainous background, about 5 miles W of Tanjung Sedano.

Selat Bali—East Side

5.6 Bukit Badung (8°48'S., 115°10'E.), a peninsula forming the S extremity of Bali, is joined to that island by a low, sandy isthmus and forms the E entrance point to Selat Bali at its S end.

Gunung Putung (8°49'S., 115°09'E.), 202m high near its center, with another hill 213m high, 0.75 mile SSW of it, appears lower than it actually is when compared to the high mountains in the N part of Bali.

The S coast of the peninsula is steep and wooded in places. There are sandy beaches at the foot of the cliffs. The coastal reef which dries, extends up to 0.4 mile offshore, and except for some rocks close inshore, there are no known dangers. There is a heavy surf here.

Tanjung Mebulu (8°50'S., 115°05'E.), the W extremity of Bukit Badung, has a white temple standing at an elevation of 78m.

Between Tanjung Mebulu and **Tanjung Tanjungan** (8°38'S., 115°06'E.), 11 miles N, the coast recedes to form a bight, and at its head is Pantai Barat.

Pantai Barat is divided into two parts by a drying reef, which extends up to 0.75 mile offshore from the low isthmus connecting Bukit Badung with Bali. The village of **Jimbaran** (Djimbaran) (8°46'S., 115°11'E.) has two remarkable round-topped trees.

Labuan Jimbaran (Djimbaran) (8°46'S., 115°09'E.), is located in the S part of the bight. Anchorage may be taken in Labuan Jimbaran in a depth of 9m, hard sand, 1.5 miles W of the two remarkable round-topped trees in Jimbaran. It is not advisable to proceed closer in due to heavy rollers.

Caution.—Vessels should anchor S of 8 45.7'S to stay clear of the approach to the airport.

5.7 From Tanjung Tanjungan to **Tanjung Pengambengan** (8°24'S., 114°35'E.), about 34 miles WNW, the coast is flat with a low plain extending to the foot of the mountains. In some areas, spurs from the mountain ridges run down close to the sea. All dangers are contained within the 20m line which lies up to 1.5 miles offshore. A light is shown from a 33m high white framework tower situated on Tanjung Pengambengan.

At **Tanjung Pabuwahan** (8°20'S., 114°31'E.), 5 miles NW, the coast is fronted by shoals to a distance over 1 mile. Tanjung Pabuwahan is the S extremity of a long, low, narrow peninsula.

Tjandikesuma (Candikesuma) (8°19'S., 114°31'E.) is a small village situated just N of the narrow peninsula. A white stone pyramid stands on a small hill near the village. The village is surrounded by an extensive coconut plantation, which can be seen from a distance of 4 to 6 miles. Anchorage can be taken in 9m or 11m, sand, with the white stone pyramid bearing 034°. A prohibited anchorage area, shown on the chart, is situated NW of the white pyramid.

Teluk Gilimanuk (8°09'S., 114°26'E.), located about 10.5 miles NNE of Tjandikesuma, is suitable only for small craft with local knowledge and is a narrow reef-fringed inlet. A wreck, in position 8°09'12"S, 114°25'58"E, lies off the islet and is dangerous to navigation.

Tanjung Pasir (8°06'S., 114°26'E.), the NW point of Bali, located 3.5 miles N of Teluk Gilimanuk, is fronted by a narrow reef. A light is shown from the point.

Bali—North Coast

5.8 The N coast of Bali between Tanjung Pasir and **Tanjung Bungkulan** (8°03'S., 115°11'E.), about 45 miles E, affords few suitable or safe anchorages.

The W part of this coast is high, and affords good landmarks for approaching the island from the N. Between Tanjung Pasir and **Tanjung Bedak** (8°06'S., 114°29'E.), about 3.25 miles E, the coast is steep-to and rises to the forest covered **Gunung Prapatagung** (8°08'S., 114°29'E.), 310m high. Pulau Menjangan, 70m high and wooded, lies 0.75 mile E of Tanjung Bedak. Anchorages may be taken, with local knowledge, in the channel between Pulau Menjangan and Bali. The reefs on both sides show discoloration.

The main mountain ridge traversing the N side of the island may be divided into two parts. **Gunung Sangiang** (8°13'S., 114°36'E.), at the W end of the W part of the ridge, rises to 1,004m, with its highest summit Gunung Patas, 1,414m high, 13 miles E. **Gunung Merbuk** (8°14'S., 114°39'E.), 1,346m high, lies between.

Bukit Batukau (8°20'S., 115°06'E.), 2,276m high, is located about 16.5 miles ESE of Gunung Patas. Bukit Batukau separates the W part of the mountain ridge from the E part. Bukit Pohen, 2,069m high, about 3.75 miles NNE of Bukit Batukau, stands at the W end of the E part of the ridge.

Gunung Batur (8°14'S., 115°23'E.), 1,717m high, is located about 18 miles NE of Bukit Batukau, with its upper slopes covered with volcanic ash.

Gunung Agung (8°20'S., 115°30'E.) is a prominent volcanic cone, with a crater summit 3,105m high, and is the island's highest peak. The uppermost slopes on the N and S sides of the mountain are covered by lava, but there are many buildings on the SW slopes.

Gunung Abang (8°17'S., 115°26'E.) 2,153m high, rises midway between Gunung Batur and Gunung Agung.

Gunung Seraya (Seraja Mountains) (8°23'S., 115°40'E.), 1,186m high, rises at the E end of the ridge traversing the island, and is conical-shaped when seen from the E. On the N side of Bali, spurs run down close to the N and NE coasts leaving only an occasional narrow strip of flat land. The range slopes down to the S and SW coasts.

Bukit Badung (8°48'S., 115°10'E.), and a group of volcanic mountains lie WNW of **Labuan Amuk** (8°31'S., 115°32'E.) on the SE coast. The lower slopes of the mountains SW and S of Bukit Batukau, and S of Gunung Abang are densely covered with villages standing amongst paddy fields. The numerous small rivers of the island frequently dry in the Southeast Monsoon.

5.9 Teluk Trima (8°08'S., 114°32'E.) is entered between Tanjung Bedak and **Tanjung Pulaki** (8°07'S., 114°35'E.), and its head is filled with reefs and foul ground. Both sides of the head of the bay are steep and wooded. Anchorage may be taken in about 40m, E of the N end of the drying reef in the center of the bay. Such anchorage is not advised in July or August with a strong SSW wind, because movement between the reefs then becomes very difficult.

Teluk Pegametan (8°07'S., 114°36'E.) is entered between Tanjung Pulaki and a mangrove-covered reef, 2 miles E. Reefs extend up to 1.5 miles W from the E side of the bay, and the head of the bay is foul. Anchorage may be taken in the N part of Teluk Pegametan in depths of 18 to 29m, with good holding ground. It is advisable to keep outside the charted 200m line off this stretch of coast.

Tanjung Sendang (8°08'S., 114°39'E.) is a low point 3 miles ESE of Tanjung Pulaki. A prominent hill, 132m high, lies close S of Tanjung Sendang. **Tanjung Gondol** (8°09'S., 114°43'E.), a steep point 52m high, lies 4.5 miles ESE of Tanjung Sendang.

From Tanjung Gondol, the low coast to **Pulau Celukanbawang** (Pulau Tjelukandawang) (8°11'S., 114°50'E.), 7.5 miles ESE, is covered with coconut palms. The island itself lies near the N edge of a drying reef which extends about 0.3 mile SW to the W entrance point of the inlet SE. Another low island, on which there is a pillar, lies midway between Pulau Celukanbawang and the point. A shelving reef, the W edge of which is marked by a lighted beacon, extends from 8°11'S, 114°49'E, and is marked by discoloration. A concrete wharf, 58m long, lies in the inlet. The wharf can accommodate vessels up to 99m in length with a maximum draft of 7m.

In the fairway of the entrance to the inlet, there are depths of 17 to 30m. The shores are low and reef fringed. A detached reef, with a depth of 2.7m, lies in the middle of the inlet and is marked by a beacon.

At the head of the inlet there is a village with a remarkable round-topped tree, 0.25 mile SW of its mosque. Range lights lead E of the detached reef.

A jetty, situated on the W shore of the bay, has 150m of berthing space with alongside depths of 9.1m. Vessels up to 5,000 dwt, with a maximum length of 99m and a maximum draft of 7m, can be accommodated. A T-head pier, with a berthing length of 60m and an alongside depth of 14m, lies close SW of the jetty.

Anchorage.—The inlet is sheltered from the Northwest Monsoon by the reef on which Pulau Celukanbawang lies. Anchorage should be taken in the entrance in depths of 49 to 60m.

Temukus Road, 9.5 miles E of Celukanbawang, is the best roadstead on the N coast of Bali.

5.10 Pulau Temukus (Pulau Kramat) (8°10'S., 114°59'E.), a steep-to, reef-fringed island, lies about 0.2 mile N of **Temukus** (8°11'S., 114°59'E.). Temukus is one of the principal trading places in Bali.

Anchorage.—The roadstead affords good anchorage in the Southeast Monsoon, and good shelter in the Northwest Monsoon under the lee of Pulau Temukus, but there is barely sufficient space for two vessels. There is also anchorage, in a depth of 26m, in a narrow passage between Pulau Temukus and Temukus. In order to swing clear of the shoals on both sides, vessels should moor WSW and ENE.

Directions.—When approaching from W, care should be taken to avoid the shoals lying within 0.75 mile of the coast between **Pengastulan** (8°11'S., 114°56'E.) and Temukus. When approaching from E, care must be taken to keep in a depth of more than 18.3m, as the reef off **Tanjung Sangeang** (8°10'S., 115°00'E.), 1.25 miles NE of Temukus, is extending.

Buleleng Road (8°06'S., 115°06'E.), 7 miles NE of Temukus Road, affords very bad anchorage, probably the poorest on the N coast of Bali. The bottom rises steeply in the roadstead from the charted 200m line, approximately 0.5 mile offshore. A reef lies in the NE part of the roadstead, about 0.9 mile WSW of **Tanjung Panurukan** (8°05'S., 115°07'E.), a low palm-covered point, and has a least depth of 1m. A beacon stands on the NW side of the reef.

5.11 Buleleng (8°06'S., 115°06'E.) ([World Port Index No. 51270](#)), the suburb of Singaraja, 1 mile S, is connected by road with most parts of the island. A light is shown from Buleleng, about 1.5 miles SW of Tanjung Panurukan. The port was closed to commercial traffic. All traffic is now handled at Celukanbawang.

Anchorage.—The least unfavorable anchorage in the vicinity of Buleleng is a depth of 35m, 0.2 mile WNW of Buleleng Lighthouse. Care must be taken to avoid the foul patches in the vicinity of this anchorage. Submarine cables exist 0.5 mile NE of Buleleng Light.

Directions.—The NE anchorage should be approached, steering 211° for Buleleng Lighthouse, which leads 183m E of a 3.4m patch, 0.2 mile NE of the previously mentioned reef. It should be remembered that the beacon stands on the NW side of the reef.

Tanjung Bungkulan (8°03'S., 115°11'E.), a low, stony point located about 6 miles NE of Buleleng, is the northernmost point of Bali. The NE coast of Bali is less populated than that W of Tanjung Bungkulan. SE of **Tanjung Tekurenan** (8°11'S., 115°29'E.), midway along this stretch of coast, it's only sparsely populated.

Numerous spurs from the mountains run down to the coast with sandy beaches between. The charted 18.3m line lies very close to the coast, and there are no known dangers outside it, except for an 11m patch, 1.5 miles E of Tanjung Bungkulan. Because of the steepness of the bottom, there are few anchorages and practically no shelter in the Southeast Monsoon.

Tides—Currents.—The N tidal currents from Selat Bali and Selat Lombok (Straat Lombok) meet near **Tanjung Gulah** (8°06'S., 115°20'E.), 10 miles ESE of Tanjung Bungkulan. When a S current is setting through these two straits, there is a

W current abreast Tanjung Bungkulan, and E off **Tanjung Ngis** (8°10'S., 115°27'E.), 8 miles ESE of Tanjung Gulah.

Bali—East Coast

5.12 From **Tanjung Bungkulan** (8°03'S., 115°11'E.) to **Tanjung Ibus** (Tanjung Iboes) (8°22'S., 115°42'E.), 36 miles SE, many mountain spurs descend to the sea. **Tanjung Batu** (8°05'S., 115°16'E.), a low rocky point, lies 5 miles SE of Tanjung Bungkulan; between is an open road 0.3 mile offshore with depths of 20.1m, soft mud and sand.

To the W of **Tanjung Saneh** (8°05'S., 115°16'E.), a point about 1 mile W of Tanjung Batu, is a sand beach and low terrain; eastward there are mountain spurs descending to the sea. A conspicuous house, with a zinc roof, stands in the village of **Julah** (Djoelah) (8°06'S., 115°19'E.), 2.5 miles ESE of Tanjung Batu. Between Tanjung Batu and Tanjung Ngis, 11 miles ESE, the coast is backed by coconut plantations.

Tianjar Road (8°12'S., 115°30'E.), over 15 miles ESE of Tanjung Batu, is identified by its village, Tianjar, which lies at the foot of **Gunung Abang** (8°17'S., 115°26'E.). Noticeable objects when approaching the roadstead are, a small temple at the NW end of the village, a large round-typed tree between **Tanjung Tekurenan** (8°11'S., 115°29'E.), 2 miles SE of Tanjung Ngis, and a similar tree and a large house with a red roof SE of the village. Two dark lava streams, devoid of vegetation, lie 0.5 mile SE of the village.

Eddies are known to exist in Tianjar Road. Anchorage may be taken in a depth of 36.6m off Tianjar, W of a line drawn N from the bare hill, 231m high, 2 miles S of the village. From Tianjar Road to Labuhan Ambat, 12 miles SE, the coast is flat but the slopes of Gunung Agung rise sharply behind it.

Labuhan Ambat is formed by a slight bend in the coast between **Tanjung Truna** (Tanjung Troena) (8°20'S., 115°38'E.) and **Tanjung Jambelo** (Tanjung Djambelo) (8°20'S., 115°40'E.), 2.25 miles SE. Small craft anchor off the village in 36.6 to 54.9m, but are unsheltered in both monsoons. The sea breeze quickly raises a heavy surf. Sudden violent squalls can be experienced night or day. Eddies are known to exist in Labuan Ambat.

The coast from Tanjung Jambelo to **Tanjung Ibus** (8°22'S., 115°42'E.), 2.25 miles SE, is steep and unapproachable. Gili Selang, close off the E extremity of Bali is a rock, 11m high, covered with vegetation and lies 2.25 miles SSE of Tanjung Ibus. A light, from which a racon transmits, is shown from Gili Selang.

Between Gili Selang, the E extremity of Bali, and **Tanjung Lokan** (8°27'S., 115°39'E.), 5 miles SW, the coast continues to be fringed by a narrow steep-to reef which dries. There are large rocks, especially off the high points.

The village of **Ujung** (8°28'S., 115°38'E.), 6 miles SW of Gili Selang, is located on the bight between Tanjung Lokan and **Tanjung Data** (8°28'S., 115°38'E.). The village is the port for **Karangasem** (8°26'S., 115°37'E.), the chief town of the area. Vessels anchor in 29 to 45.7m, sand. The roadstead should not be approached within a depth of 29m, as the bottom rises steeply.

Tanjung Biasputih (8°30'S., 115°37'E.), 8.75 miles SW of Gili Selang, is steep-to with a depth of 16.5m against the shore. Biasputih village is situated in the 0.5 mile bight N of Tanjung

Biasputih, and may be recognized by warehouses with zinc and red roofs.

Anchorage, in 20.1m, sand and rocks, is afforded in the middle of the bight.

5.13 **Gili Biaha** (8°30'S., 115°37'E.) is an islet about 0.25 mile offshore from Tanjung Biasputih. The channel in between is deep and clear, but tidal currents run strongly through it. Near the top of Gili Biaha is an opening connected by tunnel to the sea. The surf beating against the islet causes a fine mist through this opening, giving the appearance of a column of smoke rising from a crater.

Tanjung Bugbug (8°31'S., 115°35'E.), a low, steep point, lies 2 miles WSW of Tanjung Biasputih. **Bugbug** (8°30'S., 115°36'E.), an isolated coastal hill, rises to 298m 0.75 mile NE of the point. A reef, which dries with some above-water rocks, lies 0.5 mile SSW of Tanjung Bugbug.

Gili Tepekong (8°32'S., 115°35'E.) rises steeply from the sea 1 mile S of Tanjung Bugbug, and is covered with tall grass. Two large above-water rocks lie close off the N end of the islet. The passages between the reef and Gili Tepekong, and between the reef and Tanjung Bugbug are clear of dangers, but should only be attempted at slack water.

Labuhan Amuk (8°31'S., 115°32'E.) is entered between Tanjung Bugbug and **Tanjung Sari** (8°32'S., 115°31'E.), 4.25 miles WSW. A light is shown from Tanjung Sari. Anchorage, which is partially protected, is taken in 42 to 49m, soft bottom about 0.5 to 0.75 mile NNE of the short spit, 0.25 mile N of Tanjung Sari. At springs the tidal current attains a rate of 4 knots.

Labuan Amuk Terminal (8°31'S., 115°32'E.) consists of a moored storage tanker and an anchorage area, which is about 1.2 miles E of the storage tanker. The terminal is reported to be operational.

Vessels up to 23,500 dwt, with a maximum length of 325m, can be accommodated. Berthing is undertaken during daylight hours only; unberthing may be done at any time. The depth alongside the tanker is 35m.

Teluk Padang (8°32'S., 115°31'E.) is a small bay on the SW of Tanjung Sari. The bay is nearly filled with a drying reef, leaving only a narrow channel used by small craft. Leading lights in line, bearing 288°, lead into the bay. The village of Padang is situated at the head of the bay. There is a wooden jetty, with flagstaff on its head, for small craft to berth alongside. There is a stone mole about 200m long that is used for ferry service to Lombok.

Anchorage may be taken close off Teluk Padang, about 0.2 mile SW of Tanjung Sari, in a depth of 49m, about 0.1 mile from the 5.5m line. An obstruction consisting of an anchor and cable lies close to the above anchorage

5.14 **Tanjung Setra** (8°34'S. 115°27'E.), about 4.5 miles SW of Tanjung Sari, is a low sandspit marked by two tall trees and an above-water, darker colored rock. The village of Kusamba is situated close N of Tanjung Setra and is distinguished by sheds and a long row of salt pans. The low coast continues as a dark gray sandy beach, backed by villages standing amongst paddy fields to Tanjung Geling, 10 miles WSW of Tanjung Setra. The village of Ketewal, 0.5 mile NW of Tanjung Geling, can be identified by three warehouses with zinc roofs and three high round-topped

trees with white trunks. A river enters the sea near the village and has scoured an opening in the coastal reef, which provides a good landing place.

Sanur Road (8°40'S., 115°16'E.), about 3.5 miles SSW of Tanjung Geling, lies in a bight off the coast between **Tanjung Geling** (8°23'S., 115°16'E.) and **Tanjung Serangan** (8°43'S., 115°16'E.), a low wooded point with a white sand beach. Between Tanjung Serangan and the large village **Sanur** (8°40'S., 115°15'E.), 2 miles N, there are several buildings and coconut plantations.

Pabeansanur (Pabean Sanur) (8°40'S., 115°16'E.) is situated on the beach at the head of the bight; close inland is Sanur. The coastal reef fronting the shore, between Tanjung Serangan and Sanur, gradually decreases in width and is backed by a white sandy beach. At Sanur, there is a channel running S which is navigable by boats at high water between the reef and the shore. In the N part of the bight the coastal reef is narrow and backed by a dark, gray, sandy beach. The depths in the bight decrease gradually towards the head, but they are irregular within depths of 12.8m and there are some reefs.

Anchorage should not be taken in depths of less than 12.8m, nor with Tanjung Serangan bearing less than 187°.

During the Northwest Monsoon, there is little tidal current in the roadstead but in the Southeast Monsoon, the S current from **Selat Badung** (Straat Badoeng) (8°40'S., 115°22'E.) curves around the coast at a rate of up to 5 knots.

5.15 Pantai Timur (8°45'S., 115°12'E.) is a bay with swampy shores lying between Tanjung Serangan and **Tanjung Benoa** (8°45'S., 115°13'E.), 3.75 miles SW. Tanjung Benoa is the N extremity of a peninsula jutting 2 miles N into Panti Timur; on the point is the village of Benoa. A drying coastal reef, steep-to, fringes Tanjung Serangan to 0.75 miles and except for two channels, extends solidly SW across the entrance to Pantai Timur. A lighted buoy is moored 0.5 mile E of Tanjung Benoa.

Pulau Serangan (8°44'S., 115°14'E.) lies across the entrance to Pantai Timur and is 1m high at its N end, where there is a village. The red roof of a temple on the W side of the island and another temple on its SW side, are visible from seaward.

Benoa Ujung (8°45'S., 115°13'E.) ([World Port Index No. 51260](#)), 0.75 mile W of Pulau Serangan on the N side of the Benoa Channel, is the chief port of Bali. It is formed by an artificial islet on the seaward side of a causeway, on which there is a road extending across a drying reef to **Denpasar** (8°40'S., 115°13'E.). On the S side of Benoa Ujung, the general wharf is 206m long, with a depth of 6m alongside; vessels up to 30,000 dwt with a maximum length of 105m and a maximum draft of 5.5m, can be accommodated. To the W of the general wharf is a concrete wharf, 60m long, with a depth of 6m alongside, which is used for discharging fuel to the storage tank on the W end of Benoa Ujung. A Passenger/Cruise berth exists with a 290m length and 7m depth alongside.

Benoa Channel (Alur Pelayaran Benua) penetrates a considerable distance through the drying reef in Panti Timur and forms a natural harbor. The outer bar, with depths of 7.9 to 11m, lies 0.6 mile E of the entrance. It was reported that vessels up to 3,000 dwt, with a maximum length of 105m and a

maximum draft of 5.5m, could use Benoa Channel (Alur Pelayaran Benua).

Dredging was reported to be in progress to straighten and deepen the channel. There is good radar presentation of the coastline approaching Benoa Channel.

Tides—Currents.—Strong tidal currents, which are reported to attain a rate of 5 knots at springs, set in and out of Benoa Channel, and the channel N of Pulau Serangan. Strong tide rips and eddies occur in Benoa Channel. During the period of maximum declination (0° to 6°), the tide appears to be semi-diurnal, turning about 30 minutes after the times of semidiurnal high and low water.

Pilotage.—No pilot is required for the outer anchorage, but pilotage is compulsory for Benoa Channel. The pilot boards off the entrance to the channel 2.5 miles E of Benoa. All movement in the channel is prohibited at night after 1700 without special permission.

Anchorage.—Anchorage may be taken outside the charted 20m line in the open bight between Tanjung Serangan and **Nusa Dua** (8°48'S., 115°14'E.), about 5.5 miles S. There is often a heavy swell over the banks 1.75 miles NNE and 2 miles NE of Nusa Dua, when it is advisable to anchor between the banks and the coast.

During the Northwest Monsoon, a high swell almost breaking, sets over the banks and it is advisable to anchor in **Sanur Road** (8°40'S., 115°16'E.).

Anchorage may also be taken off the entrance to the channel N of Pulau Serangan, in a depth of 18m, 1.5 miles S of Tanjung Serangan.

Tanjung Benoa (8°45'S., 115°13'E.) lies at the NE extremity of Bukit Badung peninsula, forming the southernmost part of Bali.

Tanjung Gagar (8°50'S., 115°13'E.), about 5 miles S of Tanjung Benoa, is relatively low with a drying reef fringing the coast. Although the peninsula rises to **Gunung Ingas** (8°49'S., 115°09'E.), 201m high near its center, it appears lower than it actually is in comparison with the high mountains in the N part of Bali.

Bukit Badung Light is shown from the W summit of the peninsula, about 3.75 miles E of its W extremity. Masts with red obstruction lights are situated 1.75 miles and 2.5 miles farther E. A radiobeacon is situated 3.5 miles SE of Bukit Badung Light.

Selat Lombok

5.16 Selat Lombok (Straat Lombok) (8°35'S., 115°45'E.), between Bali and Lombok, is the most important strait for vessels proceeding from Australia to Singapore, China, and Japan, and vice versa, owing to its width and ease of navigation. Supertankers from the Persian Gulf, unable to pass through the Straits of Malacca, use Selat Lombok.

The S entrance to the strait is divided into two parts by **Nasu Penida** (Noesa Besar) (8°44'S., 115°32'E.) and adjacent islands, which lie W on a detached plateau of less than 183m. The portion of the strait W of these islands is known as **Selat Badung** (Straat Badoeng) (8°40'S., 115°22'E.). Selat Badung, 5.75 miles wide between Bali and Nusa Penida and its adjacent islands, is much traversed by local traffic. Selat Badung is deep and clear of dangers.

Winds—Weather.—In Selat Lombok, during the Southeast Monsoon, calm wind is frequent from sunrise to noon. At noon a fresh S wind arises, turning to SE on the Bali side and to SSW on the Lombok side, blowing strong during the night. In the Northwest Monsoon, the winds are generally from the NW. In the N approach to the strait, these winds are sometimes accompanied by violent squalls and a high sea.

Tides—Currents.—The tidal currents in Selat Lombok have a semidiurnal character, but are influenced by the currents N of the strait and in the Flores Sea. They are produced by the monsoons; therefore, in the Southeast Monsoon, a predominating S current may be expected and in the Northwest Monsoon, a predominating N current may be expected. There is insufficient information available to give full particulars of the rate and direction of the tidal currents. In the narrows of Selat Lombok, between Nusa Penida and Lombok, there are more powerful currents (up to 6 knots) than in the broader N part, where currents up to 3.5 knots can arise. Their direction is more clearly N or S than elsewhere. Counter currents may be felt in places along both shores. Strong overfalls and eddies may be encountered in both the S and N entrances to Selat Lombok at any time.

There is often a turbulent sea S of the narrows, and the tidal currents are felt far outside. Considerable variations in the directions of the tidal currents may be expected NE of Selat Badung, off Labuan Amuk and there are often eddies in **Ampenan Road** (8°35'S., 116°03'E.). The tidal currents in Selat Badung are semi-diurnal, but to the fact that its direction runs obliquely to the general S to N direction of Selat Lombok, and the curved shape of the channel, the character of the current is very complicated.

The tidal currents are also influenced by the monsoons in the same manner as in Selat Lombok. The strongest current, with a maximum rate of 8 knots, occurs in the Southeast Monsoon, with the direction being between SW and S. The strongest current in the opposite direction occurs in the Northwest Monsoon, the maximum rate being between 4 to 5 knots.

About the time of the moon's transit, the tidal current sets between N and NE (up to 4 knots) over a strip about 2.5 miles wide along the Bali shore from Tanjung Serangan to near Labuhan Amuk. In the remainder of the strait, the predominate current sets between S and SW, with strong whirling eddies between the two apposing currents.

About 2 hours after the moon's transit, the strip setting N to NE narrows between Tanjung Serangan and **Tanjung Sari** (8°32'S., 115°31'E.), but E of the meridian of Tanjung Sari it diverges to such an extent that between **Tanjung Bugbug** (8°31'S., 115°35'E.) and **Tanjung Krambitan** (8°40'S., 115°34'E.) the current sets NE toward Selat Lombok almost throughout. At the same time there is a wide strip off **Nusa Lembongan** (8°40'S., 115°28'E.) with a N to NE current. Toward the middle of Selat Badung the S current (0.5 to 3 knots) causes strong, whirling eddies. About 4 hours after the moon's transit the current sets SW to S up to 4.5 knots. Eastward of **Tanjung Setra** (8°34'S., 115°27'E.) there is a rather broad countercurrent setting NE. Six hours after the moon's transit the SW to S current weakens to 2 knots, and the above mentioned countercurrent is observed to start farther S in the strait, at **Tanjung Peranu** (8°37'S., 115°19'E.).

About 8 hours after the moon's transit the SW to S current practically disappears and from the outer roadstead of Tanjung Benoa to near Labuan Amuk, there is a N to NE current with a rate of 1 to 2 knots over a strip 4 miles wide along the Bali shore. Approximately 10 hours after the moon's transit the current over the whole strait sets N to NE. Within 3 miles of the Bali shore there are eddies and patches of much weaker current, and even S currents are observed.

About the time of the moon's transit, the tidal current sets between N and NE over a strip about 3 miles wide along the Bali shore from Tanjung Petanu to Tanjung Bugbug. In the remainder of the strait there is a SW to S current (up to 5.5 knots) with whirling eddies between the two opposing currents. About 2 hours after the moon's transit the N to NE current practically disappears.

Throughout the strait there is a SW to S current averaging 3.5 knots, but reaching 8 knots for a short period.

Approximately 3 to 4 hours after the moon's transit there is still a SW to S current which reaches an average of 4.5 knots. A maximum rate of 8 knots has also been observed during this period, while sometimes an eddy runs under Nusa Lembongan shore, with eddies where the main stream and eddy meet.

The SW to S current is always weaker under the Bali shore. About 8 hours after the moon's transit, the SW current decreases to about 2 knots. In the bight between Tanjung Setra and Tanjung Serangan, slack water may be expected, while the current may set NE across the entrance of Labuan Amuk. Approximately 10 hours after the moon's transit, the N to NE current (averaging 1.5 knots and reaching 3 knots) commences along the Bali shore as far S as Tanjung Petanu.

On the opposite side of the strait along Nusa Lembongan, there is a SW to S current. In the remainder of the strait the current is more confused but the inclination towards a SW or S current, which occurs in this area at the time of the moon's transit, becomes more noticeable. In the neck of Selat Lombok, there is a S current (6 knots maximum) in the Southeast Monsoon season, and a N current in the Northwest Monsoon season. Consideration should be given to these facts when transiting these waters.

Local currents exist within Selat Lombok, as follows:

1. Strong tidal currents have been observed in the deep passage between Nusa Ceningan and Nusa Penida.
2. Strong and irregular tidal currents occur in the vicinity of Batu Abah, a rock near the E extremity of Nusa Penida.
3. In the anchorage off a cove, 0.5 mile NE of the SW end of Nusa Lambongan, the tidal currents are strong and irregular even during slack water within the cove.
4. In a position NE of Selat Badung, tidal currents change direction frequently and many rips and eddies occur.
5. Eddies often occur in Ampenan Road (roadstead; an area of navigable water, less protected than a harbor, suitable for the passage and anchorage of ships).
6. In Benoa Channel, the reversing tidal currents are strong. East of the wharf at Benoa, the tidal currents are also strong with the flood setting S and the ebb, N.
7. In the roadstead off Sanur, tidal currents are weak during the Northwest Monsoon. During the Southeast Monsoon, there is a strong set out of Selat Badung which turns into the roadstead.

8. Heavy rips occur frequently in the S entrance to Selat Lombok and at times they resemble surf breaking over a reef extending across the entrance. Speeds up to 6 knots have been observed in the narrow part of the strait between Nusa Penida and Lombok. In the wider N part of the strait, the maximum speed is reported to be about 3.5 knots, and rips are observed at times. Rips usually occur in the strait when tidal currents reverse direction.

In Selat Badung, the pattern of tidal currents is very complex. The stronger current (as much as 8 knots) sets SW and S with the ebb when E winds predominate; with prevailing W winds, the current sets N and NE with the flood and attains speeds of 4 to 6 knots. Frequently, a current about 2.5 mile wide sets NE along the Bali coast at the same time that a current flows SW through the remainder of the strait; rips and eddies occur along the boundary between these two opposing currents.

Caution.—Small fishing boats operate without lights at night; when a major vessel approaches, they display weak lights. These vessels sometimes fail to show up on the radar screen. A depth of 95m exists on the E side of the S entrance in position 8°52'S, 115°46'E. The currents in Selat Lombok are noticeable far beyond the S end of the strait.

Nusa Penida

5.17 Nusa Penida (Noesa Besar) (8°44'S., 115°32'E.), the island between Selat Badung and Selat Lombok, has hills sloping steeply to all coasts but the N. **Mundi** (8°44'S., 115°31'E.), the summit of the island, 528m high with a round summit and a tree, rises near the center of the island.

Batu Abah (Batu Aba) (8°47'S., 115°38'E.), a rock covered with vegetation, lies off the E extremity of Nusa Penida. It was reported that Batu Abah is a good radar target at 5 miles.

Tanjung Bakung (Tanjung Sedihang) (8°49'S., 115°35'E.), the S extremity of Nusa Penida, forms a cove on its N side. The cove, which is the only landing place in the S part of the island, has a narrow sand beach on which stands a temple. The cove is too encumbered with rocks for anchoring, and there are great depths outside them. A light is shown from a gray metal framework tower on Tanjung Bakung.

Nusa Lembongan (8°40'S., 115°28'E.), lying close NW of Nusa Penida and almost completely under coconut cultivation, is hilly in the SW and low in the NE. A light is shown from a white metal framework tower on **Tanjung Taal** (8°40'S., 115°27'E.), the N extremity of the island. Vessels anchor in 11 to 12.8m, coral and stone, off a foul cove 0.5 mile NE of Tanjung Sangiang, the SW extremity of Nusa Lembongan. The cove is identified by a sand beach on which stands a temple and a broad crowned tree. Vessels must be careful not to be carried too fast toward the cove by the current.

Nusa Ceningan (Nusa Tjeningan) (8°42'S., 115°27'E.), joined to the SE side of Nusa.

Lembongan by a drying reef, is hilly except for its NW corner. The passage between Nusa Ceningan and Nusa Penida is 0.5 mile wide and very deep, with steep shores on either side. Because of strong tidal currents, navigation is difficult.

Lombok—West Coast

5.18 The SW extremity of Lombok lies over 36 miles E of the S extremity of Bali. The 3,765m peak of **Gunung Rinjani** (8°25'S., 116°27'E.) is one of the highest and largest volcanos in the archipelago. It has four peaks in a circle and a fifth peak in the middle, from which smoke always rises. It is reported that the peak can be seen for 80 miles in clear weather. S of Gunung Rinjani, the mountainous land descends regularly to a hilly, fertile country which again rises to a desolate range.

Tanjung Batugendang (Tanjung Batoe Gendang) is a range of mountains running along the S coast of the island. The highest elevation along this range is **Gunung Mareje** (8°46'S., 116°08'E.), 740m high, about 48 miles SSW of **Gunung Rinjani** (8°25'S., 116°27'E.), the SW extremity of Lombok is high and steep, and has a prominent bare, perpendicular rock, shaped like a finger, 107m high. When seen from SW, this rock cannot be distinguished from the land behind.

The S part of the coast between Tanjung Batugendang and **Tanjung Pandanan** (8°43'S., 115°51'E.), 6.5 miles N, is steep and desolate. Midway between the points, the shore rises sheer from the sea in a white cliff, 444m high.

The coast N of the white cliff is mainly flat with a sandy beach, except for a steep part at the foot of a hill, 175m, with a fairly prominent conical summit, 2 miles SW of Tanjung Pandanan.

Between Tanjung Pandanan and **Tanjung Bebera** (8°43'S., 115°52'E.), a low point with a sandy beach on its W side, and then to **Tanjung Gresik** (8°43'S., 116°02'E.), 9.75 miles E, the coast is indented, reef-fringed, backed by low ground, and encumbered with islets.

Tanjung Gresik, W of the entrance to **Labuhan Tereng Bay** (Teluk Labuhantereng) (8°43'S., 116°03'E.), may be identified by an isolated hill 196m high, 0.6 mile S of the point.

5.19 Labuhan Tereng Bay (Teluk Labuhantereng) is entered on the E side of **Tanjung Bunutan** (8°44'S., 116°02'E.), a bluff which is easily identified. The E side of the entrance is low and sandy, and the remainder of the shore is alternatively high and low, and fringed with mudbanks with mangroves in places.

A light is shown on Tanjung Bunutan and another about 0.75 miles W of Lembar.

The inner bay on the E side of the entrance is entered between **Tanjung Cemara** (Tanjung Tjemara) (8°44'S., 116°03'E.) and Tanjung Kubur, 0.5 mile SE, between the bank extending from them.

The channel is marked by buoys and beacons. Shoal water with a depth of 4.5m extends W from Tanjung Kubur. The buoys may not be in their charted positions. There is always calm water within the inner bay.

Tides—Currents.—The tides are mixed but predominantly semidiurnal. The average range of diurnal spring tides is 1.2m and of semi-diurnal spring tides is 0.9m.

Lembar (8°44'S., 116°04'E.) is situated at the head of an inlet leading from the E side of Labuhan Tereng Bay. Lembar has superseded Ampenan, which lies 10 miles N, as the main port for the area. The port also has a ferry terminal linking the island with Bali.

Depths—Limitations.—There is a 250m L-shaped concrete pier 1 mile ENE of Tanjung Cemara, with a depth of 3m on its W side. There are depths of 6m alongside the 150m S end of the pier. The ferry pier is just E of the L-shaped jetty. Vessels with a maximum length of 138m and a maximum draft of 6m can be accommodated at the port. Berthing and unberthing are carried out during daylight hours only. Pilotage is available.

The NE arm of the bay has a least depth of 4.5m in the entrance, and 5.1m to 6.9m inside. The outer part of Labuhan Tereng Bay is clear with depths from 22.8m in the entrance, to 13.7m 0.5 mile from the head.

Anchorage.—Anchorage may be taken at all times in Labuhan Tereng Bay, particularly during the Southeast Monsoon. During N winds, it is advisable to anchor in the inner bay E of Tanjung Cemara. Local knowledge is required.

Between the entrance of Labuhan Tereng Bay and the town of Ampenan, 9.5 miles N, the coast is low and cultivated except for **Gunung Kawang** (8°40'S., 116°05'E.) and the hills just N of it.

Medusa Reef (8°35'S., 116°03'E.), with a least depth of 3.9m, lies 1 mile WSW of Ampenan. A ridge, having several 5.5m patches, extends about 5 miles S of Medusa Reef and then turns seaward.

Wilhelmina Reef (8°33'S., 116°04'E.), with a least depth of 1.2m, lies about 1.25 miles NNW of Ampenan. **Santigi Reef** (8°32'S., 116°02'E.), with a least depth of 1.5m, sand and coral, lies about 3.25 miles NNW of Ampenan.

Ampenan Road (8°35'S., 116°03'E.) is bounded by the meridian of Medusa Reef, the parallel of the S entrance to **Kokok Jangkak** (Kokok Djangkak) (8°35'S., 116°04'E.), and the roadstead boundary mark, 1 mile N of the river entrance.

5.20 Ampenan (8°34'S., 116°04'E.) ([World Port Index No. 51280](#)), was previously the principal trading center of Lombok, and is situated close N of the mouth of Kokok Jangkak. Because the river mouth is never dry, there is an especially active small craft traffic during the Southeast Monsoon.

Two red mooring buoys, used by tankers, lie about 0.25 mile NW of the pier at Ampenan. A submarine pipeline extends from shore to a position midway between the buoys. The end of the flexible hose connected to the pipeline is marked by a gray drum buoy. Anchorage is prohibited within a radius of 0.15 mile of the head of the pipeline. Currents in the roadstead are limited and irregular.

Mataram (8°35'S., 116°06'E.), the chief town of Lombok, is 2 miles inland from Ampenan. A light is shown from Ampenan, 0.3 mile N of the river mouth.

Anchorage.—Ampenan Road affords safe anchorage during the Southeast Monsoon and transition periods inside the line of shoals extending S from Medusa Reef. During the Northwest Monsoon, when a blue flag is displayed from the flagstaff, communication with the shore is suspended.

Small craft then proceed to Labuhan Tereng to discharge cargo. Deep draft vessels usually anchor 0.5 mile offshore in depths of 16 to 18m.

Directions.—When approaching Ampenan from the SW, pass outside the shoals fronting the coast S of the town, and approach the lighthouse bearing not less than 090°, which leads

0.25 mile N of Medusa Reef; then anchor as convenient, or proceed to the oil berth.

When approaching from the N, steer on the leading beacons in line, bearing 118° to the oil berth.

The coast NW of Ampenan continues low for a distance of 3.25 miles, covered with paddy fields. Then for 1.25 miles NW to **Tanjung Santigi** (8°30'S., 116°02'E.), there is a narrow strip of low land at the foot of the steep, wooded mountains.

Between Tanjung Santigi and **Tanjung Kecinan** (Tanjung Ketjinar) (8°34'S., 116°03'E.), 6 miles N, the coast is very steep, mountainous, and wooded with spurs extending to the coast. Teluk Kombal, entered between Tanjung Kecinan and **Tanjung Sirah** (Tanjung Sirrah) (8°22'S., 116°06'E.), is open to the Northwest Monsoon and has been reported to not always afford the most suitable anchorage.

Anchorage.—Although Teluk Kombal is not always a suitable anchorage in the Northwest Monsoon, sometimes during a stiff NW wind in Selat Lombok, a light wind exists from NNE and NE in the bay. When this occurs, there is a good anchorage off the village of **Baru** (Baroe) (8°24'S., 116°06'E.), in 18m, at the head of the bay, 2 miles S of Tanjung Sirah.

Directions.—Due to the existence of a reef lying 1 mile N of Baru, with a depth of 3.7m, it is advisable to approach the anchorage of Baru from SW along the S shore of the bay.

Off-lying Islands

5.21 Pulau Terawangan (Pulau Terewangan) (8°21'S., 116°02'E.) is the highest and westernmost of a chain of three islands, extending 4.5 miles W from **Tanjung Sirah** (8°22'S., 116°06'E.). Gili Meno and Gili Ayer (Gili Aer), the two other islets between Pulau Terawangan and the point, are flat. All three islets are covered with palm trees. The peak of Pulau Terawangan is considered to be a good radar target. A light is reported to be shown from Terawangan Island.

A reef, with a depth of 7m, lies 1 mile NE of Gili Meno. From there, a succession of detached reefs, with deep water between, extends E to the coast. A patch, with a depth of 0.5m, lies 2.25 miles NNE of Tanjung Sirah, and is plainly marked by discoloration, although the other dangers are not visible. Another group of detached reefs extend for 1.25 miles ESE from the 0.5m patch. Vessels without local knowledge should give the islets and previously mentioned dangers a wide berth.

Sorong Roadstead, of some importance as a shipping place for local products, lies midway between Tanjung Sirah and **Tanjung Papak** (8°19'S., 116°11'E.). The road is an indentation in the above and below-water reefs extending seaward from the villages of **Paloh** (8°22'S., 116°08'E.) and **Sorong Jukung** (8°21'S., 116°09'E.). The reefs serve as breakwaters and provide a quiet anchorage.

A beacon stands on the NE edge of a reef on the W side of the roadstead, 0.75 mile W of **Tembobor** (8°22'S., 116°07'E.). A beacon marks the W edge of the drying reef which extends from the same village.

Directions.—Sorong Road is easily entered by vessels with local knowledge, aided by the beacons and a reef which dries, located near the outer end of the spit extending N from Tembobor. A vessel can pass close E of the beacon, as it stands on the edge of the reef. Vessels approaching from S, with local

knowledge, can pass E or W of Gili Ayer or between Gili Meno and Pulau Terawangan.

The passage between Gili Ayer and Gili Meno is normally used, steering 022° with **Tanjung Mipah** (8°26'S., 116°02'E.) astern. Having passed through the passage, alter course E with the N extremity of Pulau Terawangan astern bearing 252°, which leads N of all dangers. A vessel, with local knowledge, after passing between Gili Ayer and Gili Meno, can then round the former at a distance of 0.5 mile, and steer E, passing S of the outer dangers.

From Tanjung Sirah to **Tanjung Papak** (8°19'S., 116°11'E.), 6.5 miles ENE, the NW coast of Lombok is low with a rising hinterland. The village of **Ketapang** (8°20'S., 116°01'E.) stands 1.5 miles S of Tanjung Papak.

Anchorage may be taken, by vessels with local knowledge, in a depth of 18m, close offshore from Ketapang. The best approach is with the village bearing 150°.

Lombok—North Coast

5.22 The N coast between Tanjung Papak and **Tanjung Senti** (8°22'S., 116°43'E.), about 37 miles, is low in some places and in others, steep and rocky. Behind the coast there is a relatively narrow strip of undulating land gradually increasing to high summits. Because of great depths close to the coast, there are few anchorages and the few villages on this coast are seldom visited.

Tanjung Agar Agar (8°13'S., 116°20'E.), low and inconspicuous, lies 10 miles NE of Tanjung Papak. Tidal currents from Selat Lombok are felt as far E as Tanjung Agar Agar. **Tanjung Beri** (8°14'S., 116°28'E.), a precipitous point, lies 7.5 miles E of Tanjung Agar Agar.

The NE end of Lombok is fronted by **Gili Lawang** (8°18'S., 116°42'E.) and Gili Sulat, two low brush covered islets. The W end of Gili Lawang lies 14 miles E of Tanjung Beri. Together, the islets are 5 miles in length and are separated from each other by a narrow, but deep channel.

Selat Sungian (Sungian Strait) (8°19'S., 116°42'E.) separates Gili Lawang and Gili Sulat from the NE side of Lombok. Selat Sungian is safe and has a depth of 15.8m in the fairway, through which a mid-channel course may be steered. **Tanjung Bonde** (8°21'S., 116°43'E.) is the NE extremity of Lombok.

Lombok—East Coast

5.23 The E coast of Lombok, from Tanjung Bonde to **Tanjung Gali** (8°34'S., 116°40'E.), 13 miles S, is generally low. The coast is backed by gently undulating hills which soon merge inland with the **Gunung Rinjani** (Gunung Rindjani) (8°25'S., 116°27'E.) mountain complex. From Tanjung Bonde to Tanjung Gali, the coast is fronted by islands and dangers.

Gili Petagan (8°25'S., 116°45'E.), covered with scrub and fringed by an above and below-water reef, lies 4.5 miles SSE of Tanjung Bonde. A light is situated on the SE edge of the reef fringing the island. Anchorage may be taken, with local knowledge, 0.25 mile S of the light, in a depth of 31m, sheltered from sea and swell.

Rotsige Islands (Karang Berbatu) (8°27'S., 116°44'E.), lying within 1.5 miles SSW of Gili Petagan, consists of four islets barely above water. Above and below-water reefs fringe the islands.

Tanjung Prepe (8°27'S., 116°43'E.), 5.75 miles S of Tanjung Bonde, lies W of Rotsige Islands. Vessels using the channel W of Rotsige Islands and Gili Petagan should pass E of the 4m and 7.3m shoals which lie S and SW, respectively, of Tanjung Prepe, and then in mid-channel, which is clear of dangers.

Teluk Lombok (8°30'S., 116°40'E.), 3.5 miles SW of Tanjung Prepe, is of no importance to navigation as the entrance channel has a depth of 0.6m. The islet of **Gili Lebur** (8°29'S., 116°41'E.), a bare sandy islet on the N side of a drying reef, lies nearly 1 mile E of Tanjung Bonae, the S entrance point of Teluk Lombok. Anchorage in 20.1m is afforded WNW of Gili Lebur, off the entrance of Teluk Lombok. A light is shown from Gili Lebur and Tanjung Bonae.

Tanjung Kajangan (8°30'S., 116°41'E.), 1.25 miles SE of Tanjung Bonae, is high and steep and has a conspicuous small knob. The 230m high peak, 2.75 miles W, is an isolated hill with a prominent knob on it.

Between Tanjung Gali and Labuhanhaji (Labuhanhadji), 10 miles SSE, the coast is low with steep sides in places. Inland, the ground rises gradually to a low hilly plain. An isolated depth of 19.2m lies about 3 miles S of Tanjung Gali.

5.24 Labuhanhaji (8°42'S., 116°34'E.) ([World Port Index No. 51290](#)) can be readily identified from seaward by the chimney of a rice mill. In the drying coastal reef off Labuhanhaji there is an opening to a basin marked by a beacon on the NE side, and two beacons on the SW side. There are depths of 0.3 to 1.5m in the basin, which affords shelter to small craft.

Labuhanhaji Road, bounded by the arc of a circle, with a radius of 1 mile, centered on the flagstaff does not afford safe anchorage during the Southeast Monsoon. A strong S wind blows from about 0900 until late in the afternoon. A 5.4m patch lies 1.25 miles NE of Labuhanhaji. Large vessels can take anchorage E of Labuhanhaji in a depth of 14.6m.

The shoal fringed coast from Labuhanhaji extends about 4.75 miles SSW to **Batu Belajar** (8°46'S., 116°32'E.). The bight between Batu Belajar and Tanjung Ringgit, about 6.5 miles SE, is encumbered by several reefs and shoals which dry within the 20m curve. Ships without local knowledge should not enter the area. The peninsula extending S from the isthmus is a 67m high plateau with steep sides; it forms the SE end of Lombok.

The S coast of this peninsula is a whitish color. Tanjung Ringgit Light is shown from 0.5 mile WSW of the point.

From **Tanjung Ringgit** (8°52'S., 116°36'E.) to **Tanjung Sangula** (8°55'S., 116°26'E.), 10.5 miles WSW, the coast comprises the S shore of the sizeable peninsula forming the SE of Lombok. An unexamined inlet lies 4 miles E of Tanjung Sangula.

Gili Batu (8°57'S., 116°30'E.), a low, dark rock, lies 4 miles ESE of Tanjung Sangula, 1.5 miles offshore. Close SW of Gili Batu is a breaking rock, dry only at low water stand. A 14.6m ridge extends 0.3 mile SW from the breaking rock.

Gili Melayu (Melaju) (8°56'S., 116°30'E.), a rocky islet with a level top, lies almost 0.75 mile NNE of Gili Batu, 0.25 mile off the drying reef at the entrance of the unexamined bay.

Lombok—South Coast

5.25 The S coast of Lombok is rocky and steep-to. It is inaccessible except in a few places, because of the surf caused by the heavy ocean swell. Though the hinterland is desolate and lacking in landmarks, the coast is varied. It has many high, dark points between which are short sections of sand beach. Occasionally there are conspicuous hilltops near the coast.

Teluk Awang (Ekas Bay) (8°57'S., 116°26'E.) is entered between Tanjung Sangula, steep and high, and **Tanjung Bungkulan** (8°58'S., 116°23'E.), about 3.25 miles SW. Tanjung Bungkulan is the SE end of a peninsula, which on its S side, rises vertically from the sea. The greater part of the W shore of the bay, between Tanjung Bungkulan and Tanjung Bariendi, 3.25 miles N, is steep. The S part of the E shore NNE of Tanjung Sangula is similar to the W shore, and is of a whitish color. The inner part of Teluk Awang is encumbered with reefs and should be considered dangerous. Anchorage may be taken in the outer part of Teluk Awang in a depth of 34.7m, mud, and free from the ocean swell.

From Tanjung Bungkulan to **Tanjung Tampa** (8°55'S., 116°12'E.), 12 miles W, the coastline is steep and indented by several bays having sandy beaches. Teluk Gumbang, a bay on the W side of Tanjung Bungkulan peninsula, is reported inaccessible to ships. From Tanjung Tampa to **Tanjung Sara** (8°54'S., 116°04'E.), 7.25 miles W, the coast is indented by Teluk Silungbelanak (Silung Belanak) and Teluk Pengantap. These bays are separated from each other by **Tanjung Kaju Bele** (8°53'S., 116°06'E.), 2.5 miles NE of Tanjung Sara. A small reef, with a depth of 3.3m, marked by ripples in a calm sea, lies 0.5 mile offshore, 1.75 mile W of Tanjung Tampa.

Tanjung Mareseh (8°52'S., 116°09'E.), a steep point on the E side of Teluk Silungbelanak, lies 2.75 miles E of Tanjung Kaju Bele. An above-water rock lies just off the drying reef which fringes the point.

Gili Nusa (8°53'S., 116°09'E.), a wooded islet, lies about 0.75 mile WSW of Tanjung Mareseh. Vessels should not pass S or E of Gili Nusa. An islet lies in the SW part of Teluk Pengantap, 0.5 mile NE of Tanjung Sara. A flat, above-water rock lies about 1 mile NE of the islet.

Anchorage.—Except in the change of monsoons, neither bay affords good anchorage. Small craft are fairly protected in the NE part of Teluk Silungbelanak, in a depth of 12.8m, sand.

5.26 Teluk Blongas (8°53'S., 116°02'E.), which affords good anchorage, is entered between Tanjung Sara and a rugged tongue of land 3 miles W of Tanjung Sara. The bay narrows to a width of 1.75 miles and terminates in a E and W arm.

Tanjung Pangga (8°55'S., 116°00'E.) lies 5 miles W of Tanjung Sara. Three above-water rocks lie close E of this point. Sophia Louisa Rock, 1 mile S of Tanjung Pangga, is 3m high and steep-to. The channel between the islet and the point is clear of dangers in the fairway. Gili Sara, a rocky islet 76m high, lies in the middle of the entrance to Teluk Blongas, 1.75 miles W of Tanjung Sara.

Teluk Sepi (8°52'S., 116°03'E.), the E arm of Teluk Blongas, shoals gradually from 16.5 to 5.5m, 0.5 mile from its head, which is fronted by a mudbank. On the S side of the entrance to Teluk Sepi is Gili Lowang, a small islet about 24m high, fringed by a reef. **Teluk Sawar** (8°5'S., 116°01'E.), the W arm of Teluk Blongas, is bordered by drying reefs and is suitable only for small craft. A conspicuous green, pointed hill rises to 263m, 0.5 mile N of Teluk Sawar. A 3.3m shoal lies in Teluk Sawar, 1.25 miles W of Gili Lawang. Anchorage may be taken in a depth of 29m in Teluk Blongas, or lesser depths in Teluk Sepi.

Directions.—Pass either N or S of **Sophia Louisa Rock** (8°56'S., 116°00'E.). When S of the narrow tongue E of Tanjung Pangga, keep the white beach of Teluk Sara behind Gili Sara in order to clear the rock awash E of the tongue. The 263m hill on the N side of Teluk Sawar, in range 329° with Tanjung Pengampus, leads to the entrance of Teluk Blongas. From Tanjung Pangga to **Tanjung Batu Gendang** (Tanjung Batoe Gendang) (8°50'S., 115°50'E.), the coast trends about 10.5 miles WNW. Midway on this stretch of coast is a small bay which affords anchorage.

Selat Atlas

5.27 Selat Alas (Alas Strait), about 35 miles long, is entered between Tanjung Ringgit, the SE extremity of Lombok, and **Tanjung Mangkun** (9°01'S., 116°44'E.), the SW extremity of Sumbawa. It separates Lombok from Sumbawa, and is frequently used instead of Selat Lombok. It is preferable to all passages between Nusa Tenggara (Lower Sunda Islands), as there are no dangers in it. The islands can be approached closely, and anchorage may be obtained under the coasts of Lombok and Sumbawa. Numerous prominent points and islands make it easy to fix a vessel's position.

Winds—Weather.—In the Southeast Monsoon, the S wind blows strong in Selat Alas for the greater part of the day, but subsides toward evening when the land breeze from Lombok begins. In the Northwest Monsoon, variable and baffling S winds are often experienced in Selat Alas.

Tides—Currents.—The tidal currents in Selat Alas are semidiurnal, with the flood setting N and the ebb S similarly to Selat Bali and Selat Lombok. The currents are influenced by the monsoons in the area N of Bali and Lombok, and in the Flores Sea. It is the strength of the Southeast Monsoon, a predominant S current may be expected; in the Northwest Monsoon, a predominant N current may be expected.

With weak tides, the current may run continuously in one direction (as determined above), the tidal influence being noticeable only by periodic slackening of the rate. With strong tides, the tidal current and the monsoon current may balance each other, or may augment each other. The rate of the strong currents is usually 4 knots, but with maximum lunar effect, can reach 5.5 knots.

The strongest S current of the day can be expected 6 hours after the moon's upper and lower transits. At the time of transit (depending on the relative strengths of tidal and monsoon influences), either a weak N current or slack water is experienced; when the monsoon current predominates, a weak S current predominates.

Along the Lombok E shore there is a counter-current between **Tanjung Gali** (8°34'S., 116°40'E.), and **Tanjung Kuangwahe** (8°45'S., 116°32'E.), 14 miles SSW.

In **Labuhanhaji Road** (8°42'S., 116°34'E.) it was observed that the N counter-current runs from 6 hours before, to 1 hour before the moon's transit, and the S counter-current from 1 hour before, to 6 hours after the moon's transits. Along the Sumbawa shore, the currents are very weak and the direction is the same as the main current.

The monsoon influence appears only in the N part of Selat Alas; the differences between currents in this part and the S part are, as follows:

1. Northward of Tanjung Gali, in the deep channel E of **Tanjung Petagan** (8°25'S., 116°45'E.), the strongest N currents of the day can be expected at the moon's upper and lower transits. About 6 hours after these transits (depending on the relative strengths of the tidal and monsoon influence) there is either a weak S current or slack water; if the monsoon's influence predominates, a weak N current occurs.
2. Westward of the deep channel in the N part of the strait, between **Tanjung Kayangan** (Tanjung Kajangan) (8°30'S., 116°41'E.) and Tanjung Gali, the currents run with some strength 1 hour to 2 hours earlier, thus often causing an indraft toward the Lombok shore.
3. Eastward of the deep channel, close along the W side of **Pulau Belang** (8°33'S., 116°47'E.), and also S of that island, there is little or no current and sometimes a counter-current.
4. Southward of Tanjung Gali, the N current runs from 4 hours before, to the times of the moon's upper and lower transits. The S current then runs until 8 hours after the moon's upper and lower transits. The maximum rate observed was 3 knots for both N and S currents. The rate of the S current increases to 4.5 knots only with maximum lunar effect. The maximum rate of 5.5 knots, previously mentioned, never occurs in the Northwest Monsoon in the S part of the strait.

In the Northwest Monsoon, there is no countercurrent along the Lombok shore, but the current there is weaker and changes 2 hours earlier than the main current.

Directions.—Approaching from S, Selat Alas may be identified by the high plateau forming the SE part of Lombok and the high, rugged land of the SW part of Sumbawa. From N, **Gunung Rinjani** (8°25'S., 116°27'E.) and the high NW part of Sumbawa are visible.

Sumbawa

5.28 Sumbawa is chiefly composed of volcanic, irregularly formed, and moderately wooded mountains having a parched appearance during the Southeast Monsoon. Because of the similarity of the peaks, the island offers few landmarks for offshore navigation.

The W half of Sumbawa is mostly a 600 to 1,000m high plateau, on which there are higher ridges and peaks cut by deep depressions. The E half of the island, including the peninsula at **Teluk Saleh** (8°34'S., 117°54'E.) on the N coast, has more isolated mountains and mountain groups which are largely composed of extinct volcanoes.

Gunung Tambora (8°14'S., 117°58'E.), a volcanic mountain about 2,754m high, rises in the middle of the peninsula on the NE side of Teluk Saleh, and is the highest mountain of Sumbawa. This large crater on the SE side is 1.25 miles wide. Last erupting in 1895, Gunung Tambora is believed to be the only active volcano on the island. Its chief advantage as a landmark is its comparative isolation.

Tides—Currents.—There is no information in respect to the inshore currents along the S and N coasts of Sumbawa. It may be significant that strong currents have not been reported. At either end of the W and E coasts, the influence of the tidal currents in Selat Alas and **Selat Sape** (8°39'S., 119°18'E.) should be considered. These currents are sometimes felt for great distances, especially S of the entrances.

On the S coast of Sumbawa, rotary currents and counter-currents have been observed near Selat Alas, near **Teluk Talonan** (9°07'S., 117°02'E.), **Tano Gerantah** (9°05'S., 117°09'E.), near the entrance points of **Teluk Cempi** (Teluk Tjempi) (8°46'S., 118°21'E.), and the S point of Teluk Waworada (8°44'S., 118°51'E.).

On the N coast, a powerful current can arise in and out of the entrances of **Teluk Saleh** (8°34'S., 117°54'E.).

Sumbawa—West Coast

5.29 Tanjung Mangkun (9°01'S., 116°44'E.), bold and steep-to, is the SW extremity of Sumbawa. The point is conspicuous for the 276m table mountain close N. This mountain, with lower hills NE, merges with the Sumbawa range. Three small peaks are located on the S slope of the table mountain. There is a light shown from the point.

The coast between Tanjung Mangkun and **Tanjung Benete** (8°53'S., 116°44'E.), about 8.25 miles N, has the same character throughout, lofty and broken, furrowed by dark ravines with crags and steep sides, and sandy beaches in the bay.

Tanjung Amat (8°58'S., 116°43'E.), 2.5 miles NW of Tanjung Mangkun, can be identified by the light yellow rocks on its W side and by Olet Gekli, the 352m peak on its NE side.

Tanjung Maluk (Tano Malok) (8°55'S., 116°44'E.), about 3.5 miles further N, may be seen from S to N, and is easily identified by the peculiar shape of a hill, 285m high. When seen from W, this hill is not particularly prominent. The bay SE of Tanjung Maluk affords anchorage in a depth of 18m.

Between Tanjung Maluk and Tanjung Benete, there is an inlet with depths decreasing regularly from 33m in the entrance, to 20m close off its head. When entering the inlet, the N side should be favored as a drying reef extends from the S side.

From Tanjung Benete to **Tanjung Djelengnja** (Tanjung Jelengnya) (8°51'S., 116°46'E.), 2.5 miles NE, there is a low, wooded strip of coast fronted by a drying reef, which extends up to 0.5 mile offshore. Then to **Tanjung Beru** (8°49'S., 116°47'E.), a steep-to point, 2 miles NE, the coast is bold and steep.

5.30 Teluk Taliwang (8°48'S., 116°47'E.) is entered between Tanjung Beru and Tanjung Balat, 2.5 miles N. Pulau Ponjung (Pulau Ponyung), in the S part of the bay, lies 1 mile ENE of Tanjung Beru. Tanjung Putih Batu, a steep-to point 1.5 miles ENE of Tanjung Beru, at the foot of the steeply rising Gunung Pulu Batu, 481m high, divides the bay into two parts. There is a low valley with paddy fields at the head of the S part

of the bay, into which a river flows. The entrance to the river is filled with small, low islets and off it is an islet joined to the shore by a drying reef.

Several villages stand on the banks of the river, 2.75 miles and 3.5 miles SE of Tanjung Beru.

Labuan Balat, at the head of the N part of the bay, is fronted by a beach backed by a broad valley covered with coconut palms.

Tanjung Balat is a prominent wooded point from which a reef, with a depth of 7.6m, extends 0.3 mile S.

Vessels anchor in the N part of Teluk Taliwang, off the village of Labuan Balat. Although this anchorage is open to S winds, it has been observed that the swell is less troublesome here than S of Pulau Ponjung. A landing pier at the village extends over the coastal reef.

Teluk Kertasari (Kerta Sari Bay) (8°45'S., 116°46'E.) is entered between **Tanjung Biri** (8°46'S., 116°46'E.) and a point 1.5 miles NNW. On the N entrance point to Teluk Kertasari, is a most striking sugarloaf-shaped hill, 166m high. There is seldom any significant current within the entrance points of the bay.

Anchorage may be taken in depths of 11 to 18m, sand and mud, in Teluk Kertasari, but S and SW winds quickly raise a heavy swell.

Pulau Sasasait (8°45'S., 116°43'E.), 44m high, covered with vegetation and steep-to, lies 2.75 miles W of the N entrance point to Teluk Kertasari.

Midway between the N entrance point to Teluk Kertasari and **Tanjung Belusun** (8°40'S., 116°45'E.), the high, wooded, and reef-fringed coast is broken by a low valley covered with palms. Pulau Sarong, 125m high, lies on the outer end of a drying reef which extends 1 mile W from the entrance to the valley.

Pulau Dua (8°43'S., 116°44'E.), two small rock islets, covered with vegetation, lie about 1.75 miles SW of Tanjung Belusun. From Tanjung Belusun, the high, wooded, and reef-fringed coast extends 5.5 miles NNE to the S entrance point of a wide bay. This bay is entered between its S entrance point and **Tanjung Labu Beru** (Tanjung Tano) (8°31'S., 116°49'E.), 4 miles NNE. The reef-fringed shore of the bay has a narrow strip of low land behind it. Tanjung Labu Beru is a steep-to point which forms the NW extremity of a wooded, hilly promontory, rising to 133m high at its extremity. A light is shown from the point.

5.31 Pulau Belang (8°33'S., 116°47'E.) lies at the SW end of a chain of uninhabited islands and reefs, extending ENE parallel to the coast of Sumbawa for 20 miles to **Pulau Kromo** (8°23'S., 117°05'E.). Eight islands are disposed around the Tanjung Labu Beru peninsula.

Pulau Paseran (8°31'S., 116°47'E.), 1.5 miles W of Tanjung Labu Beru, is flat and heavily vegetated as is Pulau Belang, close SSW. Both islands lie on a shoal of less than 18.3m. Depths of less than 9.1m extend 1.75 miles SW from Pulau Belang.

Closely joined by a drying reef to the NE end of Pulau Belang is Pulau Songi, 70m high. This islet is rocky and is a good landmark.

Within 3.25 miles ENE of the peninsula are **Pulau Kalong** (8°30'S., 116°52'E.) and Pulau Namo, both hilly. Pulau Kenawa, 46m high, lies about 1 mile N of the Tanjung Labu Beru peninsula and is the highest island of the three.

Pulau Genang and Pulau Ular lie within 1.75 miles NNW of the peninsula. Both are small rocky islets, the former bare and the latter vegetated.

All the above islands form the SW group off the NW coast of Sumbawa. Pulau Pandjang (Pulau Panjang), 3 miles N of Pulau Kalong, is fringed by a drying reef and covered with mangroves. It lies with its N side close within the 200m curve.

Pulau Saringi (8°26'S., 116°59'E.), 1 mile ENE of Pulau Pandjang, is separated from it by a narrow channel. There is a 5.9m patch in the middle of the channel, and depths are considerably less than charted.

Pulau Saringi with Pulau Bungin Kelat, Pulau Airtawar (Pulau Ayertawar), Pulau Demudang, and Pulau Kromo ENE of it, form the NE groups of islands, and lie on an extensive drying reef close within the 200m curve. With the exception of Pulau Saringi, all the islands are covered with mangroves. A drying boulder was reported to stand midway along the drying reef extending E from Pulau Kromo and affords a useful mark.

A prominent sandy islet, **Pulau Bedil** (8°24'S., 117°04'E.), stands near the middle of a drying reef, about 1 mile S of Pulau Kromo.

Caution.—Caution must be exercised as it was reported that the currents set obliquely across the channel towards the reef on which Pulau Bedil stands and the 4.9m patch, 0.6 mile W of it.

Tanjung Labu Beru to Tanjung Perappat

5.32 For a distance of 6 miles ESE of Tanjung Labu Beru, the coast is wooded and rises inland to two mountains, 5 miles SE and 6.75 miles ESE of the point. Then to the W entrance point of Teluk Bungin, 5 miles ENE, it is low and covered with woods, marshy land, and paddy fields.

The entire stretch of coast is clear of dangers outside the 5.5m curve, which lies fairly close, except in the vicinity of Teluk Bungin where local knowledge and caution is advised.

Teluk Labu Beru (8°32'S., 116°51'E.), a bight on the E side of Tanjung Labu Beru peninsula, is sheltered from N by Pulau Kenawa, Pulau Namo, and Pulau Kalong. It affords good anchorage in depths of 11 to 22m. A village stands 7 miles E of Tanjung Labu Beru, where there are two small jetties.

Teluk Bungin (Bungin Bay) (8°29'S., 117°00'E.) is entered between its W entrance point, a low wooded point and Pulau Kaun, on which there are several round-topped trees lying on the coastal reef, close off the E entrance point to the bay, 1.5 miles NE.

Teluk Bungin is so encumbered with drying reefs as to be practically useless, except for small vessels with local knowledge.

The coast between **Pulau Burung** (8°27'S., 117°02'E.) and **Teluk Bajo** (Teluk Badjo) (8°25'S., 117°05'E.) is low and covered with marshy ground and paddy fields interspersed with coconut palms.

Teluk Bajo affords anchorage for small vessels, in depths of 6.7 to 11.8m, but its shores are reef-fringed.

Between Teluk Bajo and Tanjung Perappat, 2.5 miles NE, the coast is low, mostly covered with paddy fields, and coconut palms.

Tanjung Perappat (8°22'S., 117°06'E.) is a low, marshy point with paddy fields inland. The coastal reef extends 0.5 mile WSW from the point.

Channels Off the Northwest Side of Sumbawa

5.33 Directions.—Between the islands off the NW side of Sumbawa and Sumbawa itself, there is a good channel, with anchorage almost everywhere. The channel may be entered by passing between Pulau Paseran and Pulau Ular, and then between Pulau Kenawa and Pulau Namo, passing close N of the latter island and Pulau Kalong. Pass S of Pulau Belang, taking care to avoid the spit extending SW from the island, and then midway between Pulau Belang and Tanjung Labu Beru.

From abreast the N side of Pulau Kalong, steer ENE for a position in mid-channel S of the E end of Pulau Pandjang. Here a vessel may alter course N and pass between Pulau Pandjang and Pulau Saring, taking care to avoid the 5.9m patch in mid-channel.

Vessels continuing ENE through the channel should be careful of the reefs extending from Sumbawa shore, between Teluk Bungin and Tanjung Perappat. Here a course nearer the off-lying islands should be held. The passage N of the islet in mid-channel S of Pulau Kromo is recommended. It is clear of dangers except for the 4.9m shoal in mid-channel between the islet and Pulau Kromo.

The low islets of **Pulau Kaun** (8°28'S., 117°00'E.) and **Pulau Burung** (8°27'S., 117°02'E.) are useful marks when navigating the ENE part of this channel. After passing the previously mentioned sandy islet and Pulau Bedil in mid-channel, pass midway between the E end of Pulau Kromo and Tanjung Perappat to sea.

Sumbawa—North Coast

5.34 Vessels navigating off the N coast of Sumbawa usually steer along the parallel of 8°00'S. At this distance there are few remarkable landmarks.

Teluk Dalam (8°22'S., 117°08'E.) lies between Tanjung Perappat and **Tanjung Sarokaja** (8°22'S., 117°10'E.), the NE entrance point to Selat Alas, 3 miles E. The coast is low and fronted by coconut palms.

Anchorage may be taken, with local knowledge, 0.25 mile offshore in Teluk Dalam in 37m, but it is open to swells. Tanjung Sarokaja is steep-to with the charted 200m curve less than 0.5 mile offshore. The point is wooded and rises to a flat hill about 100m high.

Anchorage.—A small inlet, the entrance to which lies 1.5 miles SE of Tanjung Sarokaja, affords good anchorage for small vessels in 7.8 to 11m, free from swells. The inlet is enclosed by low, wooded hills, and has an entrance 45m wide. It is not discernible from seaward except from N. Vessels are advised to keep close to the NW shore when entering.

Teluk Sumbawa (8°27'S., 117°23'E.) is entered off **Tanjung Batu Kuping** (Tanjung Batoe Koeping) (8°28'S., 117°23'E.), 15 miles ESE of Tanjung Sarokaja.

Aspect.—Approaching from N, good visual bearings can be taken on Tanjung Batu Kuping and on the mouth of the Brang Sumbawa (Sungai Soembawa), in the SE part of the bay. At or near low water, the mouth is seen as a sharp gully. It is prominent on radar.

Anchorage, with good holding ground, is afforded in 54.9m with Tanjung Batu Kuping bearing 240°, 0.8 mile. Since Teluk

Sumbawa is open, a vessel cannot be considered safe during the Northwest Monsoon.

5.35 Badas (8°28'S., 117°23'E.), the port for the town of **Sumbawa Besar** (Soembawa) (8°30'S., 117°26'E.), situated 3 miles SE of Tanjung Batu Kuping, lies in a narrow inlet 0.5 mile WNW of the point. A light is shown from the W entrance point of the inlet. The entrance has a depth of 26m in the fairway, and is marked on either side by a buoy which are lighted when a vessel is expected.

Within the entrance to the inlet which is sheltered from the Southeast Monsoon, there are depths decreasing from 20.1 to 5.5m. There is a 49.5m long wharf at Badas, with a depth of 5m alongside. Because of a limited turning room, only vessels of less than 99m should enter the port.

Vessels should enter the inlet for Badas in daytime only. Approach the entrance from well offshore, steering 211° for two range beacons, reported to stand at the head of the inlet, and then pass between the buoys at the entrance.

From **Tanjung Limong** (8°27'S., 117°24'E.), on the E side of Teluk Sumbawa, the low, forest covered coast extends 3.75 miles NNE to **Tanjung Menangis** (8°24'S., 117°26'E.), a low, wooded steep-to point.

Teluk Saleh

5.36 Teluk Saleh (Saleh Baai) (8°28'S., 117°48'E.) extends 45 miles ESE, penetrating to within 6 miles of the S coast of Sumbawa. The bay is seldom visited as there are no trading centers of any importance. The NE side of the bay is steep-to with depths ranging from over 183m in the outer part, to 5.4m at the head. The SW side of the bay is fronted by islets and shoals. The islets, which can generally be approached closely, are chiefly rocks covered with vegetation rising perpendicularly from deep water. Numerous villages are situated on the SW side of the bay and at the head.

Gunung Tambora (8°14'S., 117°58'E.), a volcanic mountain, rises in the middle of the peninsula on the NE side of Teluk Saleh and is a good landmark.

Islands at the Entrance to Teluk Saleh

5.37 Pulau Moyo (Pulau Mojo) (8°15'S., 117°33'E.), a large island, lies across the entrance to Teluk Saleh. Selat Saleh (Straat Saleh), at the S end of Pulau Moyo and Selat Batahai (Straat Batahai), at the N end, are the deep and clear entrances into Teluk Saleh.

Pulau Moyo is declared a Wildlife Reserve and the waters S of Moyo are to be a National Sea Park.

Pulau Medang (8°08'S., 117°24'E.), 4.75 miles NW of Pulau Moyo, is the outer island in the approach to Teluk Saleh. It is separated from Pulau Moyo by a deep and clear channel in which no strong currents have been reported.

Tanjung Utara (Tanjung Oetara), the W end of the island, has shoal patches as far as 1.25 miles SW.

Several detached reefs, with depths of 4.5 to 7m, lie within 1 mile of the N coast, and a small islet on a drying reef lies 0.4 mile N of Tanjung Timor, the E extremity of the island. Vessels passing N of Pulau Medang should keep outside the 200m curve. A light is shown from the N central part of Pulau

Medang. It was reported that Pulau Medang was a good radar target at 18 miles.

Anchorage may be taken, by vessels with local knowledge, off the N coast of Pulau Medang where the depths decrease gradually within the 40m curve.

Pulau Satonda (8°06'S., 117°45'E.), 4.5 miles NE of Pulau Moyo, lies 1.25 miles off the Sumbawa coast at the NE end of Selat Batahai. The island is saddle-shaped, 312m high, and densely overgrown.

5.38 Selat Saleh (Straat Saleh), a clear channel between the S end of Pulau Moyo and the Sumbawa coast, has a least width of 1.25 miles. A 2 knot current in either direction may be found in the strait. The strait has steep shores on either side, except for part of the S shore 3 miles ESE of **Tanjung Menangis** (8°24'S., 117°26'E.), where three rivers enter the strait through a mangrove swamp. Here, the 20m curve lies 0.5 mile offshore. When passing through the strait it is preferable to favor the shore of Pulau Moyo, which is steep-to.

Anchorage may be taken, by vessels with local knowledge, 0.5 mile W of the entrance to the three rivers on the S shore. Care should be taking to avoid a 5.9m patch which lies just within the 20m curve.

Selat Batahai (Straat Batahai) forms the N entrance to Teluk Saleh and is entered between **Tanjung Panda** (8°09'S., 117°40'E.) and **Tanjung Brenti** (8°09'S., 117°44'E.) on Sumbawa. A 10.1m patch lies 0.5 mile SW of Tanjung Brenti, but elsewhere the strait is deep and clear of dangers. Tidal currents in Selat Batahai attain a rate of 2 knots.

Teluk Praya (8°25'S., 117°35'E.), close within Selat Saleh, has a least width of 0.5 mile between the fringing reefs and extends 4.75 miles S to its head. The S part of the bay broadens to about 1 mile and affords good anchorage. Depths shoal regularly from about 50m in the entrance, to 12.8m at the head. Care must be taken to avoid two shoals, with depths of 0.3m and 0.9m, just outside the 10m curve on the E side of the head of the bay.

Teluk Tarata (Tarata Baai) (8°28'S., 117°42'E.), 7 miles SE of Teluk Praya, is entered between **Pulau Dangar besar** (8°26'S., 117°40'E.) and **Pulau Liang** (Pulau Liang Maja) (8°32'S., 117°41'E.) on the W, and **Pulau Ngali** (8°29'S., 117°43'E.) on the E. Pulau Dangar-besar is conspicuous for the 123m hillock on its N end. Teluk Tarata extends S between the above mentioned islands, and has its head S of Pulau Liang.

Anchorage, in 13.7 to 15m, mud, is taken off the wide mouth of a river at the head of Teluk Tarata.

Directions.—Vessels having local knowledge can pass E of the drying reef off the SE side of Pulau Liang, and W of **Kabo** (8°32'S., 117°42'E.), a high, sharp-pointed islet in midchannel off the SE end of Pulau Liang. A 5.5m patch between the islet and the point may be passed on either side. The S extremity of Pulau Liang should be passed fairly closely, and then course may be altered for the anchorage by steering for the river entrance at the head of the bay. Take care to avoid the shoals, with depths of 1.2m and 3m, which lie 0.6 mile SW of and the same distance SSW of the S extremity of Pulau Liang.

The portion of Teluk Tarata lying SE and S of the SE end of Pulau Liang is foul. Between Pulau Ngali and **Pulau Raki** (Pulau Rakiet) (8°37'S., 117°58'E.), 11.25 miles ESE, the SW shore of Teluk Saleh forms a broad bight studded with islets

and shoals, and bordered by numerous villages. The shores of the bight are indented by small bays.

5.39 Karang Raba (Aart van Nes) (8°32'S., 117°53'E.), which dries and lies close to the charted 200m curve, is 6.5 miles ENE of the SE extremity of Pulau Ngali. When covered, it is plainly marked by discoloration. A shoal, with a depth of 0.3m not marked by discoloration, lies 2.25 miles E of Karang Raba. A steep-to reef, which dries, lies 1.75 miles farther E.

Extending for 7 miles SE from Pulau Ngali are the islands Pulau Tengar, Pulau Kelapang (Pulau Katapang), Pulau Domp, and Pulau Taikebo (Pulau Taikabo). These islands are hilly and high, except for Pulau Kelapang.

Pulau Tengar is joined to Pulau Ngali by a drying reef. The channel between Pulau Tengar and Pulau Kelapang is deep and clear. Pulau Domp, the highest island, is conspicuous for a saddle ridge, 253m high. The channel between Pulau Domp and Pulau Kelapang is narrowed by a drying reef projecting from Pulau Kelapang. A fragmented, drying reef named **Ganteng** (8°36'S., 117°50'E.) extends 1 mile SSE from Pulau Domp.

Pulau Taikebo, 2 miles ESE of Pulau Domp, has a 2.7m shoal 0.75 mile S. The channel between Pulau Taikebo and Pulau Domp is deep and clear, except for Ganteng reef on the W side. A wide, clear passage separates Pulau Taikebo and Pulau Raki, about 4.75 miles E. The coast of Teluk Saleh, W of Pulau Domp, extending S for about 7.5 miles, then 12 miles E, is encumbered with numerous dangers. Local knowledge is required when entering any of the various bights and bays indenting this coast.

Pulau Raki (Pulau Rakiet) (8°37'S., 117°58'E.), deeply indented by small bays, lies a little over 1 mile off the S shore of Teluk Saleh. A small, detached, drying reef, usually marked by discoloration when covered, lies 2 miles N of Pulau Raki. Scattered above and below water dangers extend 7 miles ENE from the island.

Pulau Bakau (8°42'S., 118°01'E.), a flat, bush-covered islet, lies in mid-channel between Pulau Raki and the S shore of Teluk Saleh. Other dangers lie in this narrow channel.

5.40 Teluk Bangko Lua (8°40'S., 118°12'E.), entered 11 miles E of Pulau Raki, is on the E side of the head of Teluk Saleh. The islets of Pulau Besar and Pulau Wakakos, plus smaller islets, comprise the N and E sides of the bay. Vessels must pass close to **Tanjung Pekat** (8°40'S., 118°11'E.), the W entrance point of the bay, to avoid a 0.9m shoal, 1 mile N of the point.

Gunung Rumah (8°35'S., 118°16'E.), a hill 256m high, is located on the N side of the head of Teluk Saleh.

The hill is the S end of a ridge which, because of its even crest, resembles the roof of a house.

Teluk Kempang (8°34'S., 118°14'E.) is entered between the point on which Gunung Rumah is located and **Tanjung Kessi** (8°34'S., 118°12'E.), 3 miles WNW.

An islet lies close off a small projection at the head of the bay. A dangerous sunken rock lies close SE of the islet. A 5.9m patch lies 0.5 mile SE of the same islet.

Sapudu (8°36'S., 118°12'E.), a brush covered rock on a detached drying reef, lies 1.5 miles S of Tanjung Kessi.

Anchorage may be taken in Teluk Kempang in a depth of 8m, 0.5 mile S of the head of the bay.

Tanjung Paranggawu (8°30'S., 118°07'E.) lies about 7.75 miles NW of Tanjung Kessi; 4 miles SSW of the point is a detached drying reef. The E shore of Teluk Saleh, from Tanjung Paranggawu to the SE entrance point of Selat Batahai, 30 miles NW, is steep-to and affords no anchorage. The only danger off this shore is a 1.8m shoal head lying 9.5 miles WNW of Tanjung Paranggawu, 0.5 mile offshore.

5.41 The coast from **Tanjung Brenti** (8°09'S., 117°44'E.) to **Tanjung Katupa** (Tanjung Katoepe) (8°08'S., 118°09'E.) trends 25 miles E. The volcano Gunung Tambora dominates this coast. A local magnetic anomaly has been reported off the N coast of Pulau Sumbawa in the vicinity of Gunung Tambora. Caution should be exercised when navigating along this coast.

From Tanjung Katupa to **Tanjung Juli** (Tanjung Djoeli) (8°15'S., 118°28'E.), 20 miles ESE, the coast indents in a wide bight. **Teluk Motitai** (Moti Toi) (8°19'S., 118°16'E.) is located close W of **Tanjung Piun** (Tanjung Pioen) (8°20'S., 118°16'E.), a high rocky point, 14 miles SE of Tanjung Katupa. A shoal ridge extending more than 1 mile NW to SE fronts the bay, but a deep, clear channel exists at either end of the ridge.

Anchorage is taken inside the ridge, in 25.6 to 29m, sand and mud.

Teluk Sanggar (Dompoy Bay) (8°19'S., 118°19'E.) is entered between Tanjung Piun (Pioen) and **Tanjung Propa** (8°18'S., 118°23'E.), 6.75 miles ENE.

Tanjung Matompo (8°22'S., 118°19'E.) lies 3.25 miles SE of Tanjung Piun. The best anchorage in Teluk Sanggar is in 29m, mud, in the bight close SW of Tanjung Matompo, off the mouth of the **Sungai Kambu** (8°23'S., 118°19'E.).

From Tanjung Juli to **Tanjung Paropa** (8°18'S., 118°39'E.), 11.5 miles E, the ridge of several mountain peaks extends to the coast.

Tanjung Wonto (8°20'S., 118°41'E.), 3 miles SE of Tanjung Paropa, is the W entrance point of Teluk Bima.

Teluk Bima, entered between Tanjung Wonto and **Tanjung Batuputih** (Tanjung Batoe Poetih) (8°21'S., 118°44'E.), 3 miles ESE, extends 13 miles S. The bay lies between high, hilly land and affords secure anchorage.

About 4 miles S of Tanjung Wonto, the bay narrows to a least width of 0.3 mile, and the channel becomes somewhat winding for 1.5 miles.

The bay then widens again and remains so almost to its head. The port of Bima is situated on the E side of Teluk Bima, 2.5 miles S of the narrows.

5.42 Bima (8°27'S., 118°43'E.) ([World Port Index No. 51300](#)) is the principal port serving E Sumbawa. The town is actually a collection of villages built on a plain through which **Sungai Romo** (8°27'S., 118°43'E.) flows.

A causeway extending over the tide flat at Bima has a T-head about 68m long. Small craft and lighters up to 50m in length can berth alongside, in a depth of 3m. Ocean-going vessels anchor off the pier where coastal vessels and lighters are worked alongside.

Winds—Weather.—During the Southeast Monsoon, very strong S winds accompanied by heavy squalls sometimes blow continuously for many days. The land and sea breezes are

usually regular in both monsoons; the Southeast Monsoon blows directly out through the entrance, and the Northwest Monsoon blows directly in.

Tides—Currents.—No significant currents have been noted in Teluk Bima.

Depths—Limitations.—Depths in Teluk Bima, from its entrance to the S end of the narrows, are 45.7m or more. Fairway depths shoal regularly from 45.7 to 11m at the head.

Anchorage.—Anchorage may be taken almost anywhere in the inner part of Teluk Bima, in depths of 12 to 33m. The bottom is sand and mud. Off Bima, vessels usually anchor between **Pulau Kambing** (8°27'S., 118°42'E.) and the entrance to Sungai Romo, in a depth of 16 to 18m.

Caution.—Anchoring within the bay between parallels of 8°25'S and 8°26'30"S is dangerous because of possible mines.

5.43 From Tanjung Batuputih to **Tanjung Naru** (Tanjung Naroe) (8°19'S., 119°00'E.), the NE extremity of Sumbawa, the coast is low, flat, and edged by tall trees.

Tanjung Naru Lighthouse stands at a height of 44m on the point.

Doro Maria (8°29'S., 118°56'E.) about 1,479m high, 11.5 miles SSW of Tanjung Naru, but it is obscured from N by a high spur extending from it. The only village on this stretch of coast lies at the head of **Teluk Wera** (8°18'S., 118°56'E.), 4.75 miles W of Tanjung Naru, in the entrance to a grassy valley between two high ridges extending from Doro Maria.

The village is not visible from seaward, but a row of palm trees stands behind it and indicate its position. Two above-water rocks lie on the coastal reef extending from the W entrance point to Teluk Wera. The W and larger is 9m high. The E entrance point is rocky, but there is a sandy beach between the points.

Anchorage may be taken, by a vessel with local knowledge, E or W of the entrance to a small river which flows into the head of the bay, in a depth of 18m. The W entrance is preferable, as the 9.1m and 20m curves are farther apart.

Pulau Sangeang (8°10'S., 119°05'E.), an active volcanic island whose slopes descend to the sea, lies 4 miles NNE of Tanjung Naru. The intervening channel is deep and clear.

A light is shown from the N side of the island.

Sumbawa—East Coast

5.44 From Tanjung Naru to **Tanjung Wamba** (8°31'S., 119°03'E.), the coast trends SSE 12 miles. The mountainous land lies a few miles back of this coastal stretch. The only recognizable peak is the blunt mountain Doro Maria, 8 miles W of Tanjung Wamba. This is the highest elevation in the vicinity.

Between Tanjung Wamba and **Tano Mabala** (Toro Mabalang) (8°33'S., 119°10'E.), 7.25 miles ESE, the coast forms a bight which extends 7.75 miles SSW. The W side of the bight is mostly low and flat.

Toro Naga Nuri (8°33'S., 119°02'E.), 3 miles SW of Tanjung Wamba, is the E termination of a ridge running through the flat land. A light is shown from the point. Nisa Sani, about 1 mile ESE of Toro Naga Nuri, is a 143m high island, steep-to on its E side. The island is easily seen against the Sumbawa coast.

Teluk Sape (8°33'S., 119°02'E.) ([World Port Index No. 51305](#)) is entered between Toro Naga Nuri and the N end of Nisa Sanai. The S entrance of the bay is obstructed by islets and drying shoals, extending from the SW side of Nisa Sanai to the Sumbawa coast.

Nisa Tosso (8°34'S., 119°02'E.), the northernmost of these dangers, is steep-to on its N side. A 4.6m patch lies about 0.3 mile E of this islet. A stone causeway, about 0.3 mile long, is situated at the head of a river, 1.5 miles SSW of Toro Naga Nuri. Toro Naga Nuri Light is shown from the point.

Anchorage may be obtained in Teluk Sape, N of Nisa Tosso. Small vessels can anchor SW of this islet off the head of the causeway.

Between **Pulau Radeh** (8°36'S., 119°03'E.) and **Toro Gadu** (Tano Gadu) (8°36'S., 119°07'E.), 4.5 miles E, there is a large bay fronted by a wide sandy beach, except on its W side where it is mud. The W part of the bay is backed by a wooded ridge which extends N from the hill in the SW part of the bay. Loh Latoh, an inlet, lies 2.5 miles SSE of Tano Gadu, but it is too encumbered with reefs to be recommended as an anchorage. A drying sand bank, marked by surf and discoloration when covered, lies 1.5 miles SW of Taro Gadu.

Anchorage may be taken between the 20m and 40m curves in the bay W of the reefs and banks off Loh Latoh. Between Taro Gadu and Tano Mabala (Toro Mabalang), 4 miles NE, the coast is indented by several inlets which are mostly encumbered by drying banks. Tano Mabala is the N extremity of a peninsula forming the E side of the bight between it and Tanjung Wamba.

Off-lying Islands

5.45 Pulau Sentodo (Sentodo) (8°33'S., 119°11'E.), 0.75 mile NE of Tano Mabala, is 60m high and separated from the coast by a deep clear channel. Close W of Pulau Sentodo is an islet equally steep, but much worn by the sea. Two rocks, 6m high, lie about 0.3 mile E of Pulau Sentodo. At times, there are heavy tide rips in the channel between Pulau Sentodo and the mainland, extending far into Selat Sape.

Pulau Matagateh (Mata Gateh) (8°34'S., 119°12'E.), 75m high, lies across the entrance to Labuan Jati (Labuan Djati), about 1.25 miles SE of Tano Mabala. The island rises steeply from the sea, is covered with grass, and reef-fringed with some sandy beaches in the bays on the E and W sides.

Anchorage, free from tide rips, is situated in the S part of Labuan Jati in depths of 18 to 37m. If entering by the S entrance between **Tano Wadudali** (Toro Wadoe Dali) (8°35'S., 119°11'E.) and Pulau Matagateh, 0.4 mile NE, it is preferable to pass W of a 2.7m shoal lying 0.5 mile S of the island.

Pulau Kelapa (8°40'S., 119°14'E.), rises to about 429m high in its center. The coast on all sides is indented with bays, and a drying reef extends 0.75 mile from its E side. Two lights in line, bearing 172°, are shown from Pulau Kelapa, marking the main channel of Selat Sape. It passes between Pulau Matagateh and **Pulau Barsu Panda** (Barsoe Panda) (8°32'S., 119°14'E.), about 3 miles NE of the N extremity of Pulau Matagateh. Pulau Ilus (Iloes), a rocky islet 39m high, lies 1 mile SW of Pulau Kelapa. A steep-to ridge, with a least depth of 10.1m, lies between Pulau Ilus and Pulau Kelapa. Because there are heavy rollers and tide rips

over this ridge, vessels using the channel between Pulau Kelapa and Sumbawa should pass W of Pulau Ilus.

Labuan Botu (Laboean Botoe) (8°38'S., 119°11'E.) is entered 3.25 miles S of Pulau Matagateh, between **Tano Botu** (Tanjung Botoe) (8°39'S., 119°11'E.) and a narrow, wooded point, 1 mile NE. A low, rocky islet lies 0.3 mile SE of the N entrance point of the bay.

A similar islet lies 0.6 mile NNE of the same point. A reef, with depths of less than 8.5m, extends 1 mile ENE from Tano Botu. This danger is often marked by breakers.

From Tano Botu to **Tanjung Rata** (8°42'S., 119°11'E.), about 3 miles S, the coast continues high, wooded, and reef-fringed. Small vessels obtain good anchorage in the cove on the N side of an unnamed rocky islet about 0.5 mile N of Tanjung Rata.

A rocky islet, with an above-water rock off its E side, lies 1.25 miles ESE of Tanjung Rata. Between Tanjung Rata and Tanjung Rano (Toro Rano), 1.5 miles S, there is a small reef-fringed bay. Tanjung Rano may be identified by a conical hill, 233m high, inside the point. An arched rock, 8m high, with two above-water rocks close to it, lies close E of the point. Two rocks, which dry and usually marked by surf, lie close SE of the arched rock. Between Tanjung Rano and **Toro Rata** (8°45'S., 119°09'E.), 2.75 miles WSW, the coast is steep-to and wooded.

Selat Sape

5.46 Selat Sape (Straat Sape) (8°39'S., 119°18'E.), between Sumbawa and Pulau Komodo, 11.5 miles E, is the usual route taken when proceeding from Selat Sumba (Straat Soemba) to the Flores Sea, and vice versa. The N part of Selat Sape is divided into two branches by **Pulau Banta** (Gila Banta) (8°26'S., 119°18'E.). The main route lies E of **Pulau Kelapa** (8°40'S., 119°14'E.), then between **Pulau Sentodo** (8°33'S., 119°11'E.) and Pulau Barsu Panda (Barsoe Panda), 3 miles E, and then W or E of Pulau Sangeang.

The passage E of Pulau Banta and Pulau Komodo is seldom used. The depths are great, the tidal currents strong, and there is less opportunity for anchoring off the W side of Pulau Komodo than off Sumbawa, especially in the Northwest Monsoon.

Winds—Weather.—The Southeast Monsoon lasts from April to October and is strongest in July and August. During these months, S to SE winds blow continuously causing a high S swell and turbulent sea, especially when wind and current oppose each other. In November and December, the two transition months, the sea is comparatively calm. In the Northwest Monsoon there is also a S sea swell. The change from this monsoon to the Southeast Monsoon is not particularly notable.

Tides—Currents.—The tidal currents in Selat Sape are semidiurnal and are only slightly affected by the monsoon drift in the Flores Sea. The tidal currents are weakest about 5 days after the quarter moons, the maximum N and S currents averaging 3 knots. Very strong tidal currents with a maximum rate of 4 to 6 knots occur from 2 to 5 days after the full and new moon.

When the moon's greatest declination occurs during this period, a rate of 8 to 10 knots may be expected; although, during the Northwest Monsoon this only applies to the N

current, and during the Southeast Monsoon only to the S current.

Near **Pulau Sentodo** (8°33'S., 119°11'E.), there are frequently strong tide rips and whirlpools which seriously affect vessel steering.

In the large bight between Pulau Langkoi and Toro Letuhoh, 6.25 miles N, there is frequently an eddy under the shore of Pulau Komodo. During the Northwest Monsoon, from about 4 hours before, to 1 hour after the moon's upper and lower meridian transits, there is a N current which was reported to attain a rate of 2 knots with strong tide rips and eddies. For the remainder of the time the current is S. Under the coast of Sumbawa, in the N part of the strait, the current turns about 1 hour later.

During the Southeast Monsoon, from about 3.5 hours before, to 1.5 hours after the moon's upper and lower meridian transits, the current is N. For the remainder of the time the current is S.

Islands and Dangers in Selat Sape

5.47 Pulau Sapekah (Sapekah) (8°33'S., 119°16'E.), 76m high, is the most useful landmark in the middle of the main route through Selat Sape. The island has the appearance of a wedge with the low end lying N, the flat upper side overgrown with reeds, and the bare S side rising steeply from the sea. A large rock, 6m high, stands on the drying reef close to its NW side. There are great depths around Pulau Sapekah.

Tukoh Mapinka (8°33'S., 119°15'E.), 15.2m high, 1.5 miles W of Pulau Sapekah, are two rocks separated by a narrow, shoal channel. These rocks are flat on top, covered with reeds, steep-to, and may be passed close, allowing for the strong tidal currents. A 12.8m patch, the position of which is approximate, lies 1.5 miles W of Tukoh Mapinka. There are heavy tide rips over this patch.

Pulau Barsu Panda (Barsoe Panda) (8°32'S., 119°14'E.) is a bare gray rock, 11m high on its S and N sides, lying 1 mile NW of Pulau Mapinka. A shoal ridge, with a least depth of 4.9m at its outer end, extends nearly 0.3 mile N from Pulau Barsu Panda, and the depths around it are irregular.

Barsu Menyerih (Barsoe Menjerih) (8°31'S., 119°15'E.), 1.75 miles NE of Pulau Barsu Panda, is a small rock awash. Because this rock is never marked by breakers, and there are only tide rips during the strength of the tidal currents, it constitutes a serious danger.

Barsu Basso (Barsoe Basso) (8°29'S., 119°15'E.), 1.5 miles N of Barsu Menyerih, consists of a mass of rocks a few meters above water on which the sea breaks heavily. Shoal water surrounding the rocks has a diameter of about 0.25 mile.

Pulau Banta (Gila Banta) (8°26'S., 119°18'E.) is mountainous, uninhabited, and mostly covered with reeds. The highest part of the island, 1.5 miles SSW of Tano Oiungke (Toro Oi Uengke), the NE extremity, is 369m high. Three hills on the NW peninsula of Pulau Banta are easy to identify from W. The large bay on the N side of the island is too deep for anchorage.

Lubuan Gili Banta (8°27'S., 119°19'E.), the largest bay on the S side of Pulau Banta, is clear of dangers, but narrows to a width of about 0.4 mile at its head. Depths in the bay decrease from 53m at the entrance, to 7m at its head.

Anchorage may be taken, by vessels with local knowledge, on the W side of Labuan Gili Banta, NE of the W entrance point.

Caution.—A large reef, with a least depth of 4m, lies about 1 mile NNE of the NE extremity of Pulau Banta. The reef is normally marked by strong tidal eddies, except at slack water.

Pulau Komodo

5.48 The E side of Selat Sape is formed by the W coast of **Pulau Komodo** (8°35'S., 119°27'E.), a mountainous island almost entirely covered with forest. A ridge of mountains traverses Pulau Komodo from N to S, but there are no distinctive peaks anywhere that can be used by vessels as a landmark.

Toro Beru (Batu Montjo) (8°26'S., 119°26'E.), the NW extremity of Pulau Komodo, is a steep, wooded point. Two bare rocks lie on the coastal reef close W of this point. Relatively strong currents may be encountered off this point.

Lehok Boko (8°29'S., 119°26'E.), entered between a point about 1.75 miles S of Toro Beru, and Toro Lehok Boi, 2 miles farther SW, has limited anchorage area. The head of Lehok Boko is constricted by a broad drying reef which fringes the N shore.

Vessels can anchor in depths of 18 to 26m close W of a point on the S side of Lehok Boko, 1.75 miles ENE of Toro Lehok Boi. Toro Lehok Boi is the extremity of a high tongue of land separating Lehok Boko from **Lehok Boi** (8°31'S., 119°26'E.), the next bay S.

Tukoh Lehok Boi, two islets covered with vegetation and some rocks above-water, lie on a drying reef in the middle of the entrance to Lehok Boi, 1 mile S of Toro Lehok Boi.

Anchorage may be taken off the head of Lehok Boi, S of a projecting point which divides the head into two parts outside the 20m curve.

Off-lying Islets

5.49 Several offshore dangers lie W of Toro Lehok Boi, the outermost being Tukoh Gili Banta, 4 miles W. This sharp, bare rock, which rises steeply from the sea has three peaks 60m high. Seen from SW, the peaks are exactly in line. A little over 1 mile NNW of Tukoh Gili Banta is a small dangerous rock usually visible. The surf on this rock cannot be distinguished from the usual tide rips in Selat Sape.

Luluh Tare (8°31'S., 119°22'E.), 1.5 miles SE of the S extremity of Tukoh Gili Banta, is a 21m high pinnacle fringed by a narrow steep-to reef.

Tukoh Lehok Gebah (8°34'S., 119°23'E.), 3 miles WSW of Toro Lehok Boi, consists of two islets on a drying reef. A bank, with a depth of 37m, lies near the 200m curve, 1 mile W of Tukoh Lehok Gebah.

Overfalls marking this bank gives it the appearance of a serious danger. Tukoh Seri Kaja, 1 mile NE of Tukoh Lehok Gebah, is a steep-to islet covered with reeds and 41m high. Tukoh Seri Kaja resembles Tukoh Lehok Gebah, but is larger and higher.

Tanjung Saloka (8°35'S., 119°22'E.), midway on the W coast of Pulau Komodo, is a high, steep point. A steep-to rock,

awash but seldom breaking, lies 1 mile NNE of Tanjung Saloka.

Toro Letuhoh (8°37'S., 119°23'E.), 2.75 miles S of Tanjung Saloka, is high and from N or S appears as a sugarloaf.

Nisa Leme (8°37'S., 119°21'E.), 2 miles WNW of Toro Letuhoh, is a rugged rock, 40m high, and can be passed close-to. Labuan Letuhoh lies E of Toro Letuhoh and is the only anchorage S of Tanjung Saloka.

A steep rocky islet, covered with vegetation, lies on the wide bank extending 0.4 mile N from the E entrance point of the bay. At the head of the bay is a sandy beach. Ships seldom lie quietly in Labuan Letuhoh.

Between Toro Letuhoh and the SW extremity of Pulau Komodo, 6 miles S, the coast is high and steep. The S end of the range traversing the island, 519m high, rises 3 miles NE of the SW extremity of Pulau Komodo.

Pulau Langkoi (Langkoi) (8°44'S., 119°23'E.), close off the SW extremity of Pulau Komodo, to which it is joined by a reef, is a steep bare islet, rising to a narrow prominent ridge. The islet is a good landmark for vessels approaching Selat Sape from S. Rocks, extend 0.2 mile S from Pulau Langkoi.

Sumbawa—South Coast

5.50 From **Toro Rata** (8°45'S., 119°09'E.) to **Tporo Jampang** (Tano Jampa) (8°45'S., 118°59'E.), 9.5 miles W, the coast is mainly steep and rocky with an occasional sand beach.

A light is shown from Toro Jampang. Tano Baku (Toro Bakoe), 2.5 miles E of Tano Jampa, is marked by a 359m high hill close NE. Seen from ESE, the hill is conical, but from S it is tabular with the SE edge higher.

Teluk Waworada (Waworada Baai) (8°46'S., 118°58'E.) is entered between Tano Jampa (Toro Djampang) and **Tano Sido** (Toro Sido) (8°47'S., 118°58'E.), about 2.75 miles SSW. The bay extends 16 miles W from its entrance and affords anchorage throughout. The bay is backed by mountains with flat land generally at the foot of the slopes.

Tides—Currents.—No currents of any significance are reported in Teluk Waworada. The possibility of a cross-current in front of the entrance must be allowed for.

Depths—Limitations.—Teluk Waworada has general depths from 36.6 to 54.9m within 5 miles of the head. The 20m curve lies about 1.25 miles from the head and less than 1 mile from the other shore. Close within the curve are numerous dangers. The S and N coasts are indented by bights forming several bays encumbered by drying shoals. Off-shore islands, shoals, and various other dangers lie within Teluk Waworada. Nisa Bea and Nisa Dorah islands lie; respectively, 8.75 mile and 11 miles W of Tano Jampa.

Directions.—For standing into the bay, the S end of Nisa Bea in range, bearing 279°, with the N end of Nisa Dorah is a good mark. In clear weather, **Doro Simposai** (8°43'S., 118°42'E.), 416m high, will be seen on this bearing and when passing, **Toro Pangkajarat** (8°46'S., 118°55'E.) should not be opened S of Nisa Dorah. Nisa Bea can be passed on either side, but if proceeding N of the island, care must be taken to avoid the 3.7m reef near mid-channel.

5.51 Tanjung Langundu (Toro Langoedoe) (8°49'S., 118°59'E.), 1.75 miles SSE of Tano Sido, is conspicuous for

three sharp peaks, each higher than the previous when progressing inland. From Tanjung Langundu to **Tanjung Doro** (Toro Doro) (8°53'S., 118°29'E.), a steep and rocky point located 29 miles W of Tanjung Langundu, the coast indents 3.5 miles N in the form of a long bight.

Doro Rasa (8°48'S., 118°43'E.), 15 miles W of Tanjung Langundu, is a prominent bare mountain, 431m high. From E, it is conical-shaped with a dome-shaped summit of a ridge, and from W appears as an isolated half-sphere.

Teluk Cempi (Tjempi Baai) (8°46'S., 118°21'E.), entered between Tanjung Doro and Tanjung Baru (Tanjung Baroe), 19.5 miles W, extends 17 miles NE and is backed on either side by high land, except at its head. The E shore of Teluk Cempi, between Tanjung Doro and **Toro Huu** (8°47'S., 118°24'E.), 8 miles NW, is steep, wooded, and fringed by a drying reef. Toro Huu is the SW extremity of a low sandy point covered with paddy fields. Batu Kurung Buha (Batoe Koeroeng Boeha), a reef with depths of less than 5.5m, extends 2.25 miles WNW from Toro Huu, and forms a breakwater across the entrance to the bay.

There are some rocks awash near the outer edges of the reef, and depths are very irregular up to the 20m curve.

Though surf usually marks the reefs, it does not indicate the edge.

Good anchorage is afforded along the W side of Teluk Cempi. Good anchorage, sheltered from the swell, may be taken N of Batu Kurung Buha.

Caution.—Because of the muddy state of the water, caused by numerous small rivers flowing into the bay, the reef is seldom marked by discoloration. Tidal currents in and out of the bay are fairly strong, but precise information is lacking.

5.52 Between **Tanjung Baru** (8°53'S., 118°10'E.) and Tanjung Mata, 15 miles WSW, is **Teluk Tiro** (Telok Baroe) (8°52'S., 118°04'E.). The head of the bay and the E side are formed by sandy beaches backed by palm trees. The E entrance point of the bay is Tanjung Baru, with the bay extending 8.75 miles W.

Anchorage may be obtained in the NE part of Teluk Tiro during the Southeast Monsoon, and in the change of monsoons, in a depth of 37m.

The coast between Tanjung Mata and **Tanjung Sebu** (Seboe) (9°03'S., 117°20'E.), a steep point about 35 miles WSW, is identified by several bays with sandy beaches and many rivers fronted by drying reefs.

Unter Satong (Satong) (8°52'S., 117°46'E.), about 430m high, lies about 9.5 miles WNW of Tanjung Mata.

When seen from S, it shows a number of peaks. A hill, 346m high, prominent for its conical shape when viewed from S or E, is located about 9 miles, bearing 238° from Unter Satong.

From Tanjung Sebu to Tano Garantah, the coast trends 11.5 miles W forming the broad bight **Teluk Lampui** (Lamar) (9°03'S., 117°13'E.). At the head of this bay are several streams. The shore of Teluk Lampui consists of an un-interrupted sand beach, fronted by a drying reef, lying at the foot of mountains covered with low vegetation.

Anchorage may be taken, by vessels with local knowledge, off the common entrance to the rivers. A rock, visible 5 miles from the W, lies close off Tano Garantah.

Between Tano Garantah and **Tanjung Mangkun** (9°01'S., 116°44'E.), the coast trends 26 miles W.

Tanjung Moneh (Talonan) (9°06'S., 117°02'E.), a low point where a tongue of land projects across a small bay, lies about 7.5 miles W of Tano Garantah. The coast between Tanjung Talonan and Tanjung Mangkun, 18.5 miles WNW, is comprised of a sandy beach fringed by a drying reef and backed by a narrow strip of palms.

Off-lying Dangers to the North

5.53 The sea area N of Bali, Lombok, and Sumbawa, as far as the parallel 5°S, consists of several island atolls along with islets, shoals, reefs, and accompanying dangers. There are several extensive detached shoal banks, notably **Kepulauan Tengah** (7°30'S., 117°29'E.) and **Kepulauan Liukang Tenggara** (6°33'S., 118°48'E.) and the unnamed bank on which stands **Pulau Kalukalukuang** (5°12'S., 117°40'E.), together with several smaller banks in the area embraced by these three. All these banks appear to lie on a shelf with depths of less than 550m. In addition to these banks, there are some isolated small shoals and islets rising abruptly from deep water.

Kepulauan Kangean (7°03'S., 115°00'E.) consists of one large island and several smaller ones, with numerous islets surrounding and between them. These islands are only important to navigation as landmarks. The sea area N of the larger islands of the groups, as far as the parallel 6°20'S, is studded with reefs and dangers. Navigation in this area is inadvisable.

Karang Takat (7°03'S., 115°00'E.), a large steep-to reef marked on its W edge by a light, lies 12 miles WSW of the W extremity of **Pulau Kangean** (6°55'S., 115°20'E.). The tidal currents are irregular and set strongly along the W and E points of the reef. The reef is plainly marked by discoloration, when covered.

The passage between the W extremity of Karang Takat and the shoal ground about 11 miles SW, is deep and clear, except for a shoal with a 5.5m depth, about 1 mile W of Karang Takat. Pulau Kangean, the largest island of the group, is densely wooded and consists of coral lime heaved up by volcanic action. The greater part of the N coast is mountainous.

Tanjung Tinggi (6°50'S., 115°13'E.), the NW extremity of the island, is high, wooded, and visible for 24 to 28 miles. Teluk Ketapang, which indents the coast just S of this point, is the only anchorage of importance. It is entered between **Pulau Mamburit** (6°51'S., 115°13'E.) and Tanjung Batu Teteh, 2.75 miles SSW. The N side of the bay is formed by a hilly promontory terminating in Tanjung Batu Guluk.

Anchorage may be obtained in depths of 13 to 15m, hard clay, about 0.2 mile ESE of Tanjung Batu Guluk.

Takat Patokanan (6°51'S., 115°14'E.) consists of three drying reefs. Takat Luar and Takat Takat, two other drying reefs, separated by a narrow, foul channel, lie 0.4 mile E and 0.7 mile SE, respectively, of Takat Patokanan.

This channel, which has a depth of 0.9m, leads to **Kalisangka** (6°51'S., 115°15'E.) pier, 1.5 miles SE of Tanjung Batu Guluk. A light is shown from the head of the pier.

Anchorage may be obtained in depths of 5.7 to 7m, soft clay, 0.2 mile W of the W end of Takat Takat. The S coast of Pulau Kangean is low and indented with many bays and inlets, all

encumbered with islets and reefs. Teluk Hekla and Teluk Gedeh, with its entrance 5 miles SE, are of no importance.

5.54 Pulau Saubi (7°00'S., 115°26'E.) and Pulau Sabunting, both of which are low, lie 6.5 and 11 miles E of the entrance to Teluk Gedeh. Anchorage may be taken, with local knowledge, N of Pulau Saubi in depths of 20 to 33m, mud bottom.

Pulau Paliat (6°58'S., 115°36'E.) is separated from Pulau Kangean by a narrow channel. A ridge of hills extends the length of the island, rising to its highest summit, 143m near its NW end.

Pulau Sapankur (7°00'S., 115°31'E.) and Pulau Saur lie 2 miles off the S side of Pulau Paliat, and are high in the middle and cultivated. Pulau Saebus, 1 mile E of Pulau Saur, is covered with coconut palms, inhabited, and cultivated.

Pulau Sapeken (7°00'S., 115°42'E.), next in importance to Pulau Kangean, lies 1 mile E of Pulau Paliat with some zinc-roofed houses near its S end. Pulau Parappo lies in the channel. The latter is covered with mangroves and apparently uninhabited.

Pulau Bangkan (7°01'S., 115°41'E.), 0.5 mile S of Pulau Parappo, is reef fringed and mangrove covered. Anchorage may be taken off the SE side of Pulau Sapeken, in a depth of 11m. Caution is necessary in order to avoid the numerous shoals and mud flats. The area has not been completely surveyed.

Pulau Silarangan (6°56'S., 115°38'E.), 2 miles N of Pulau Paliat, with some scattered trees, lies on the W end of an extensive reef.

Pulau Satabo (6°58'S., 115°42'E.), 4.5 miles ESE of Pulau Silarangan, is wooded and lies on the W end of an extensive reef, on the E end is Pulau Sidulang-kecil (Pulau Sedulang-kecil). The latter has a small high point with clumps of mangroves on the reefs. Pulau Sidulang-besar (Pulau Sedulang-besar), lies about 1.25 miles NE of Pulau Sidulang-kecil.

Pulau Saular (6°56'S., 115°44'E.), about 2.5 miles W of Pulau Sidulang-besar, lies on the SE end of a reef. A hospital with a red roof is situated on Pulau Saular.

Pulau Pagerungan-kecil (6°57'S., 115°52'E.), located about 4.25 miles E of Pulau Sidulang-besar, is densely covered with coconut palms. Pulau Pagerungan-besar, 1 mile E, is cultivated in the W part and wooded on its E.

Caution.—A gas field, which consists of an offshore platform, lies 2 miles E of Pulau Pagerungan-besar. Pagerungan Marine Terminal consists of an SBM lying 2 miles S of the platform and an anchorage area for waiting ships lying 2 miles S of the SBM.

Tankers up to 125,000 dwt can be handled. A depth of 7m was reported to lie 3 miles E of the SBM.

5.55 Pulau Sepanjang (Pulau Sapanjang) (7°10'S., 115°50'E.), the SE and second largest island of Kepulauan Kangean, is low and wooded. A fishing village stands on the NE extremity of the island. It has been reported that the S coastal reef extends about 0.3 mile farther S than charted.

Pulau Saseel (7°05'S., 115°45'E.), near the NW end of the reef fringing Pulau Sapanjang, has a village on its E side and some scattered trees. Pulau Seridi-kecil and Pulau Seridi-besar,

2.5 miles and 4 miles NE of Pulau Saseel, are wooded and uninhabited.

Pulau Sakala (6°57'S., 116°15'E.), 12 miles ENE of the NE point of Pulau Sepanjang, is the E of Kepulauan Kangean, and although low, it has some tall trees which are visible from about 17 miles. The island is fringed by a steep-to reef, the NE edge of which is covered with vegetation, giving it the appearance of a detached island when seen from W.

A light is shown from a white metal framework tower on the E side of Pulau Sakala.

Caution.—The sea area N of the larger islands of Kepulauan Kangean, as far as the parallel 6°20'S, is studded with reefs and dangers.

There is deep water between these dangers, but few marks are available for avoiding them and navigating in this area is inadvisable.

A rock, with a depth of less than 2m, has been reported to lie about 25 miles S of the light on Pulau Sakala.

5.56 Pulau Araan (6°29'S., 115°45'E.), the largest of the many islets, has high trees. All the islets in the area are uninhabited, but are temporarily occupied by fishermen at times.

Pulau Aluan, 9 miles S of Pulau Araan, has three round-topped trees.

Pulau Igangan (Pulau Patjar) (6°40'S., 115°38'E.), 5 miles SW, has two tall trees, and Pulau Segentoh, 1.75 miles SE of the same islet, has a slender row of casuarenas. All the above islets, which lie on drying reefs, are visible in clear weather from 13 miles.

Pulau Miongan (6°43'S., 115°39'E.), lying 6 miles SSW of Pulau Aluan, has a remarkable tree, and Pulau Timunan, which lies 10.5 miles WNW of Pulau Aluan, is covered with low vegetation. Both islets are reef-fringed, and visible from between 7 miles and 8 miles.

5.57 Pulau Bunginnjampur (6°36'S., 115°30'E.), 3 miles SSW of Pulau Timunan, is a reef fringed, sand cay covered with vegetation, visible at 6 miles.

Gosong Balam (6°25'S., 115°13'E.), with a depth of 2.1m, lies about 31 miles W of Pulau Araan. An 11m patch lies 6 miles WNW, an 11.9m patch lies 10.5 miles SW, and a drying rock lies 10 miles SE; respectively, of Gosong Balam. These are the known NW dangers in the area. In the NE part of the area is **Kwong Eng Reef** (6°32'S., 116°07'E.), with a least depth of 1.2m. Breakers were reported to lie 17 miles NNW of Kwong Eng Reef and a 6.9m patch lies 9 miles to the ENE.

Sibbalds Bank (5°45'S., 117°05'E.), lying about 73 miles NE of Kwong Eng Reef, has a least depth of 7.6m. It lies at the SW end of an extensive coral bank.

Tide rips have also been observed from 6 miles SW, to 6 miles SE of the bank. A light is shown from a black, metal framework tower on the NE side of the bank.

The SW end of a large bank, with charted depths of less than 183m, lies 10 miles ESE of Sibbalds Bank, and extends about 63 miles NE. There are several islands and dangers in the E and NW part of this bank. A bank of coral, with depths of 11m, lies 15 miles SE of Sibbalds Bank.

5.58 Pulau Kalukalukuang (5°12'S., 117°40'E.), 59m high and covered with coconut palms, stands on the NW side of the bank about 48 miles NE of Sibbalds Banks. It was reported to be radar conspicuous at 24 miles, and is visible at least 12 miles in clear weather. A coral reef fringes the island. A light is shown from the N extremity of Pulau Kalukalukuang, and a racon transmits from the light. A shoal, with a depth of 12.2m, was reported to lie 9 miles S of the S extremity of Pulau Kalukalukuang.

Pulau Butongbutongan, the N and smaller island, lies 16 miles NE of Pulau Kalukalukuang on an extensive drying reef. It is covered with banana trees and uninhabited.

Pulau Doangdoangan-kecil (5°15'S., 117°53'E.), about 33m high and covered with coconut palms, lies 13 miles ESE of Pulau Kalukalukuang and is fringed by a drying reef. Pulau Doangdoangan-besar, visible 12 miles in clear weather, lies about 5 miles SSE of Pulau Doangdoangan-kecil. It is fringed by a drying reef. The island has been reported to lie 2 miles NW of its charted position.

Doangdoangan Besar Light (5°24.8'S., 117°56.8'E.) is shown at a height of 41m.

Pulau Marasende (5°07'S., 118°09'E.), about 29m high, 15 miles ESE of Pulau Butongbutongan, may be identified by a group of high casuarinas on its N end, visible 16 miles in clear weather. Elsewhere, the island is covered with coconut palms and a village stands on its W side. Karang Marasende, about 6 miles SSW of Pulau Marasende, is a steep-to drying coral reef of small extent.

Laars Bank, consisting of three isolated coral reefs covered with fine white sand, rises steeply from great depths. The N end of the N reef lies 23 miles SE of Pulau Marasende.

Pulau Dewakang-lompo (5°24'S., 118°26'E.) and **Pulau Dewakang-cadi** (5°30'S., 118°28'E.), both about 29m high and covered with coconut trees, lie on the N reef. Pulau Dewakang-lompo is visible in clear weather for 13 to 14 miles and Pulau Dewakang-cadi for 12 to 13 miles. The reef on which Pulau Dewakang-lompo lies forms a funnel-shaped opening on the S side, where small vessels with local knowledge can obtain good anchorage.

The channel leading into the S side of the island is encumbered with many shoals and drying rocks. A light is shown on a 30m, white metal framework tower from the N end of the island, and a radiobeacon transmits from it.

Bone Laisi (5°55'S., 118°12'E.), the S reef, has a least depth of 10.5m on a ridge along the NW part of the reef.

Pisani Bank (6°07'S., 118°17'E.), with a least depth of 20m, lies near the S end of Bone Laisi, 43 miles SSW of Pulau Dewakang-lompo. A detached shoal, with a depth of 13.1m, was found close E of the S end of Pisani Bank.

Bone Pute (5°43'S., 118°18'E.), the middle reef, is separated from Bone Laisi by a deep channel, 2 miles wide. There is a least depth of 5.8m over the N end of Bone Pute. In the channel between Bone Laisi and Bone Pute, a 5m patch lies 2 miles NE of the N end of Bone Pute; although, it has been reported that less water exists in this area. A strong current causes rips and overfalls.

5.59 Pulau Banka Oeluang (5°30'S., 118°38'E.), 10.5 miles E of Pulau Dewakang-cadi, is partly covered with

coconut palms. It was reported as a good radar target at 13 miles.

Karang Bankauluang (5°50'S., 118°28'E.), with a least depth of 9.6m, lies 19 miles S of Pulau Dewakang-cadi and is steep-to.

De Greve Shoal (5°58'S., 118°26'E.), slightly discolored and with a least depth of 11m, sand and stones, lies about 6 miles SW of the S extremity of Karang Bankauluang.

Taka Rewataya (6°05'S., 118°54'E.), 19 miles W of DeGreve Shoal, is an atoll-shaped coral reef, the edge of which dries except in one part of the SW side, where there is a channel with depths of 2 to 4m giving access to a deep basin. A light is shown from a 23m white, eight-sided metal tower with red stripes on the SW edge of the bank. Kepulauan Liukang Tenggara (Kepulauan Tenggara) (Pulau Pulau Sabalana) and Kepulauan Tengah, two island groups between the parallels 7°50'S, 6°30'S, extend about 130 miles NE. Both main groups are divided into two lesser groups lying on separate atolls NE and SW of each other. At the SW end of Kepulauan Tengah are Sekunci (Sakuntji) and Pulau Sadapur, both of which lie on the same atoll. Separating the four main atolls, on which these islands and reefs lie, are wide channels with depths of over 183m that may be safely navigated by day. The islands are seldom visited, except for small craft collecting copra or during the fishing season.

The large islands of the groups have a peculiar formation in that the seaward side consists of a ridge of reefs, 45 to 91m wide, thickly covered with vegetation.

The main island lies behind this ridge of reef, and the intervening reef either dries or is below-water. In some islands the formation is very pronounced and in others, the growth of the coral reef is in its early stages.

Tides—Currents.—Over the atolls on which Kepulauan Liukang Tenggara and Kepulauan Tengah lie, and the channels between them, the tidal currents only appear appreciable in that they strengthen the monsoon current, when both are running in the same direction, and weaken it when in opposition. A rate of 1 to 2 knots over the atolls is not exceptional. The combined current is usually strongest along the E and SE edges of the atolls, in some places attaining a rate of 2 to 3 knots for about 1 hour, with whirlpools and heavy tide rips. Although the same peculiarity is sometimes observed along the W and NW edges of the atolls, it does not occur in so marked a degree. It is always advisable for passing vessels to give the edges of the atolls a wide berth.

5.60 Pulau Jailamu (Djailamu) (6°33'S., 118°48'E.), at the NE end of the atoll, lies about 29 miles SSW of **Taku Rewataya** (6°05'S., 118°54'E.). The majority of the islands of this atoll lie on its NE and SE edges. About 5 miles off the W edge are two detached islets and two detached reefs. Between Pulau Jailamu and **Pulau Lilikang** (6°48'S., 119°11'E.), about 27 miles SE, the atoll is formed by a chain of islets.

There is a village standing among palm trees in the middle of **Pulau Sabaru** (6°35'S., 118°50'E.), located 3 miles SE of Pulau Jailamu. Another village on the SW side of Pulau Balobaloang-besar lies 1.5 miles farther SE.

Dog Reefs (6°44'S., 118°50'E.), with a least depth of 6.4m, SW end lies 9 miles SSW of Pulau Balobaloang-besar. Numerous patches, with a least depth of 7.6m, and a below-

water rock at their SW end, extend 14 miles SW from Dog Reefs.

Pulau Banawaya (6°50'S., 119°12'E.), marked by a light, lies on the E extremity of the atoll with Pulau Lilikang, 2 miles N, on the E end of a drying reef.

Pulau Sabalana (6°51'S., 119°07'E.), the largest island on the atoll, lies near the middle of the large drying reef, 4 miles WSW of Pulau Banawaya, and is covered with mangroves on its SE side. Pulau Santigiang lies 2.75 miles SW of Pulau Sabalana on the SW end of a large reef.

Pulau Sanana-besar (6°50'S., 119°02'E.) lies 5 miles WNW of Pulau Sabalana, while **Pulau Soroabu** (6°55'S., 119°02'E.) lies 5 miles SW of the same island.

Pulau Meong (6°51'S., 119°00'E.), a small sand cay, lies 6 miles W of Pulau Sabalana with **Pulau Matalang** (6°52'S., 118°58'E.), 1.25 miles WSW. Between Pulau Matalang and **Pulau Sarege** (7°04'S., 118°39'E.), the southernmost islands of the group, are **Pulau Balaohong** (6°53'S., 118°55'E.), **Pulau Manukang** (6°56'S., 118°52'E.), and **Pulau Sadulang** (6°58'S., 118°49'E.), with apparently clear channels between.

Anchorage may be taken, in an emergency, in a basin with depths of 7.3 to 16.4m, sand, enclosed by shoal water extending between **Pulau Sanana-kecil** (6°49'S., 119°01'E.), Pulau Sanana-besar, Pulau Santigiang, and Pulau Soroabu (Pulau Suruabu), SE of Pulau Meong. This anchorage affords shelter to vessels with local knowledge.

Directions.—The basin is entered from W, passing either N or S of Pulau Meong's fringing, drying reef. During the Northwest Monsoon, it is advisable to take the passage between Pulau Matalang and Pulau Meong, thus passing S of Pulau Meong and over a 7.3m stony ridge. In the Southeast Monsoon, vessels can pass N of Pulau Meong, where a least depth over the ridge is 5.9m.

5.61 Pulau Pelokang (7°11'S., 118°25'E.), comprised of three islets, lies at the E end of the atoll. There is a light on the islet.

Pulau Sapuka-besar (7°04'S., 118°11'E.), the largest island of the group, lies about 15 miles WNW of Pulau Pelokang with a chain of reefs between. It lies near the SE end of an extensive reef in the middle of the N side of the atoll. Pulau Sambardjaga and Pulau Sambargigitang lie; respectively, on this chain of reefs about 3 miles ESE of and 7 miles SE of Pulau Sapuka-besar.

Pulau Sapuka-kecil (7°07'S., 118°10'E.), close S of Pulau Sapuka-besar, lies on the NE part of a 5 mile long drying reef. Numerous reefs extend W from this drying reef. Anchorage may be taken S of the edge of the reef fringing Pulau Sapuka-besar in depths of 37 to 55m.

Directions.—Pass S of Pulau Sambardjaga, steering for Pulau Sapuka-kecil, bearing 258°. When the W extremity of Pulau Sapuka-besar bears 305°, steer for it and the anchorage.

The passage between the reefs, on which Pulau Sapuka-besar and Pulau Sapuka-kecil stand, may be used by vessels with local knowledge.

Pulau Kambanglamari (7°04'S., 118°00'E.) lies near the NW end of the atoll with Pulau Tinggalungang 3 miles NE. The W side of the atoll, between Pulau Kambanglamari and **Pulau Tokohbatu** (7°13'S., 118°01'E.), 9 miles S, is free of dangers except for a 4.6m patch, located 2.5 miles SSW of

Pulau Kambanflamari. A ridge, with a least depth of 5.4m, extends 5 miles S from Pulau Tokohbatu.

Pulau Lamuruang (7°18'S., 118°06'E.), the southernmost island of the atoll, lies about 7.5 miles SE of Pulau Tokohbatu. There is a noticeable tree on Pulau Lamuruang.

An extensive steep-to bank, with a least depth of 10.1m on its W edge, lies 23 miles SSE of Pulau Lamuruang.

The bank is marked by heavy rips and the bottom, sand and coral, is visible in many places.

5.62 Kepulauan Tengah stands on an atoll which rises very steeply from the sea on all sides. The E extremity lies about 15 miles SSW of Pulau Lamuruang. The charted 200m curve around the atoll is clearly defined.

Except at the E end where there are numerous reefs, the atoll can be easily navigated. The passages between the islets are mostly deep and clear of dangers, and the reefs are clearly marked by discoloration; patches, with depths of 12.8 to 16.5m, are so plain that they give the impression of much less water. The islets on this atoll are about 29m high, sandy, and covered with coconut palms except where otherwise stated. All of them stand on drying reefs.

Karang Satunggul (7°32'S., 118°00'E.), the E extremity of the atoll, is formed by three sand cays on the NE side of the reef, with sand cays on its SE and SW edges. Several reefs lie between Karang Satunggul and Pulau Sapinggang, 8 miles WNW. Foul ground extends from Karang Satunggul almost to **Pulau Satunggul** (7°32'S., 117°53'E.), 6 miles W, and a reef extends for 7 miles WNW.

Pulau Aloang (7°23'S., 117°48'E.) lies in the middle of the NE side of the atoll, 4.5 miles WNW of Pulau Sapinggang. Pulau Tampaang, a sand cay, lies about 3.5 miles WNW of Pulau Aloang.

Between Pulau Tampaang and **Pulau Sadujung** (Pulau Saujung) (7°21'S., 117°32'E.), 12.5 miles W, there is a large drying reef from which foul ground extends nearly 3 miles S.

Pulau Sadujung lies in the middle of the N side of the atoll. Sand cays lie 4 miles SE and 7.75 miles SSE, respectively, of Pulau Sadujung.

Pulau Marabatuang (7°29'S., 117°29'E.), 9 miles SSW of Pulau Sadujung, is a low sandy islet covered with palm trees and mangroves on its E side. This islet is exceptional in its formation as the outlying ridge lies on its E side of the islet, instead of the seaward side.

5.63 Pulau Sailus-besar (7°28'S., 117°26'E.) lies 2.25 miles SW of Pulau Marabatuang and is 59m high.

Villages stand on the E and W sides of the island, where fresh water wells exist. Anchorage may be obtained by vessels with local knowledge either E or SW of Pulau Sailus-besar, outside the 20m curve.

Directions.—From N, pass between Pulau Sailus-besar and **Pulau Satengar** (7°32'S., 117°20'E.), 5.5 miles W, if proceeding to the SW anchorage.

If proceeding to the E anchorage, pass between Pulau Sailus-besar and Pulau Marabatuang. From S, steer for the W extremity

of Pulau Sailus-besar, bearing between 005° and 015°. This approach leads in a least depth of 16.5m over a sandy ridge between **Pulau Sailus-kecil** (7°35'S., 117°27'E.), close SW of Pulau Sailus-besar, and the drying reef 5 miles W. From E, steer 270° for the S extremity of Pulau Sailus-besar, which leads to the E anchorage.

Pulau Satengar (7°32'S., 117°20'E.), the W islet of the main atoll, lies about 5.5 miles W of Pulau Sailus-besar, with a village on its E end.

Pulau Kapoposangbali (7°30'S., 117°11'E.), 5.5 miles WNW of Pulau Satengar, is the W island of the group and lies on the SE end of a detached atoll. A tall tree stands in the middle of the island and is prominent, except from N. A light is shown from the NW side of the island.

The passage between this atoll and the main atoll is very deep and clear of dangers. It cannot be recommended because it is comparatively narrow and the tidal currents are strong.

5.64 Karang Kapoposangbali (7°36'S., 117°12'E.), 5.5 miles S of Pulau Kapoposangbali, is a sand cay. Another sand cay and a large drying reef lie about 3.25 miles and 8 miles E of Karang Kapoposangbali. The N side of a reef, an enclosed atoll, very steep-to on its outer side, lies about 9 miles S of Karang Kapoposangbali.

On the N edge of the atoll are drying reefs. A sandy islet, about 29m high and covered with vegetation, lies on the E end of the W reef. A disused lighthouse stands on the W end of the W reef. The central reef dries. On the E reef, there are three low sandy islets covered with vegetation. From the E islet, **Pulau Sadapur** (7°46'S., 117°13'E.), a ridge of below-water coral extends along the E side of the atoll.

Sekunci (Sekuntji) (7°51'S., 117°12'E.) reef lies on the S side of the atoll and consists of a steep-to reef and coral sand, the latter always above-water.

A lighthouse is situated on the E part of Sekunci Reef. This lighthouse was reported to be a radar target at 6 miles.

Anchorage.—The W side of Sekunci may be approached cautiously, and anchorage may be obtained in depths of 29 to 55m, sand and coral.

Directions.—Having passed through Selat Bali, Selat Lombok, or Selat Alas, a vessel may proceed through several channels heading N.

Passing between Kepulauan Kangean and Kepulauan Tengah, keep W of Sibbalds Banks and **Pulau Kalukalukuang** (5°12'S., 117°40'E.), then NE about 110 miles and N into the E side of Makassar Strait.

The channel between the bank on which Pulau Kalukalukuang and adjacent islands lie and Laars Banks, 18 miles ESE, is used by vessels proceeding N along the E side of Makassar Strait.

The channel between Laars Banks and **Taka Rewataya** (6°05'S., 118°54'E.), 38 miles E of their S end, is frequently used by vessels proceeding between **Surabaya** (7°12'S., 112°44'E.) and **Ujung Pandang** (5°08'S., 119°24'E.).